

**A SOCIAL IDENTITY ANALYSIS OF DISORDERED  
EATING BEHAVIOUR**

**TEGAN CRUWYS**

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## DECLARATION

This thesis, including both the research described and the document itself, represents my own original work. Individuals who provided either material or conceptual assistance are acknowledged on the following page.

A handwritten signature in cursive script, appearing to read "T. Cruwys", written over a horizontal line.

Tegan Cruwys

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## ABSTRACT

Across the developed world, rates of disordered eating are increasing. Formal eating disorders, unhealthy dieting and obesity have all been escalating over the last forty years. Various theoretical models have been proposed to explain this increase. *Sociocultural* models have drawn attention to features of the social environment, such as the cultural value placed on thinness for women (causing body dissatisfaction, and subsequently, weight-loss attempts), or the hyperavailability of energy dense foods and energy-saving technologies (causing obesity). *Individualistic* models have identified a variety of genetic and personality factors, such as perfectionism, low self-esteem and thin-ideal internalisation, that increase vulnerability to disordered eating. However, these two approaches to disordered eating are currently a) incompatible, and b) unable to account for the evidence of *social influence* in eating behaviour. In this thesis, I propose a social identity analysis of disordered eating behaviour. This conceptualisation is able to parsimoniously incorporate previous findings by attending to the mechanism through which sociocultural phenomena are represented psychologically (via self-categorisation). Across 10 studies and 5 empirical chapters, evidence is presented for this social identity analysis. Firstly, a Dieting Intentions Scale is developed and validated in four studies, such that future dieting behaviour may be adequately measured as a dependent variable in the research. Secondly, two experiments demonstrate that the perception of shared psychological group membership is a necessary condition for social influence in eating behaviour. Thirdly, three studies show that the predictors of dieting intentions are context-dependent, and are determined by an individual's salient self-categorisations. Fourthly and finally, one experiment tests the applicability of the social identity analysis of social influence in a clinical population. The thesis has implications for social-psychological theory, in extending and testing the social identity approach, particularly in the health domain. However, it has greater

implications for clinical-psychological theory, in questioning the biomedical model of eating pathology and suggesting new strategies for modifying and preventing disordered eating behaviour. Overall, this thesis provides a strong case for the relevance of the social identity approach to health generally, and eating behaviour in particular.

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## CHAPTER ONE

### INTRODUCTION

#### Problem Statement

Recent decades have seen a dramatic increase in the rates of all recognised eating disorders, as well as a crisis of obesity in Western developed countries (Battle & Brownell, 1996; Mond, Hay, Rodgers, & Owen, 2009). This societal-level shift in behaviour implies that the causes of this behaviour cannot be purely biological or personality-based in nature, as these factors are relatively stable. Instead, it suggests that social-psychological processes may play a role in the aetiology and maintenance of unhealthy eating. Unfortunately, predicting and modifying eating behaviour has received limited attention in social-psychological research.

There is evidence suggesting the important role of social factors in contributing to the aetiology of different forms of disordered eating. For example, eating disorders and subclinical disordered eating are overrepresented in dance and modelling students, suggesting the presence of strong group-based norms in the development and maintenance of these behaviours (Garner & Garfinkel, 1980). Similarly, prospective research has revealed that obesity has a feature of social contagion, spreading through social networks such that, when an individual becomes obese, his or her friends and relatives are at a higher risk of also becoming obese (Christakis & Fowler, 2007). These latter findings occur regardless of geographical distribution and controlling for the tendency of people to make friends with those of similar weight. This demonstrates that the spread of obesity is due to *social influence* (and not, say, other non-social environmental features). Thus, there is now empirical evidence that the social context, in general, and social influence processes in particular, play a strong causal role in eating behaviour.



The exact mechanism, however, through which social factors influence eating behaviour continues to be the subject of debate. An extensive sociological literature suggests that sociocultural factors, such as the “obesogenic” environment (Dixon & Broom, 2007) and the “thin ideal” of women’s beauty (Wiseman, Gray, Mosimann, & Ahrens, 1992), are responsible for a distortion in eating behaviours at a population level. By contrast, psychological work on disordered eating has primarily focused on individual-level factors that increase vulnerability, such as low personal self-esteem (Shea & Pritchard, 2007), high tendency toward conformity (Twamley & Davis, 1999) or “internalisation” of the thin-ideal (Cusamano & Thompson, 1997; Thompson, 1999; Vartanian, 2009).

However, despite the significant and valuable contributions of these researchers, it has not been clearly articulated how features of the social environment come to influence an individual’s behaviours. A social-psychological analysis is particularly well-positioned to address this question. There is extensive social-psychological theory that has specified the mechanisms through which characteristics of social groups (such as norms) come to be expressed in the behaviour of an individual, via the process of identification. Currently, this thesis seeks to articulate the predictions of this theoretical framework in the domain of disordered eating behaviour and experimentally test these predictions.

### **Aim**

The primary aim of this thesis is to develop a social identity analysis of social influence for disordered eating behaviour.

### **Scope**

The scope of this analysis is broad, encompassing problems of both under-eating and over-eating, at both clinical and subclinical levels of severity. This breadth is

important due to the argument made by this thesis that the increase in disordered eating behaviour arises from changes in an aetiological factor which applies to all forms of disordered eating behaviour – that is, the social-psychological context.

Nevertheless, the analysis will be contained in two ways. Firstly, the key dependent variables of interest are *behavioural* – eating behaviour and eating behavioural intentions. This focuses the investigation on phenomena that are of objective concern to physical and mental health, rather than purely self-report of internal states (e.g. body dissatisfaction, attitudes to thinness). Focusing on behaviours also allows analysis of the continuum of disordered eating (including, for instance, sub-clinical unhealthy dieting) and avoids having to select participants on the basis of diagnostic criteria that are increasingly considered arbitrary and inadequate in this domain (Eddy et al., 2008; Thomas, Vartanian, & Brownell, 2009; Wonderlich, Joiner Jr, Keel, Williamson, & Crosby, 2007). Secondly, the analysis will focus on women, both because of the greater prevalence of disordered eating behaviours in this demographic as well as the difficulty in accessing a sample of males with disordered eating behaviours (Hoek & van Hoeken, 2003).

Thirdly, although the goal of this thesis is to provide evidence for a social-psychological model of disordered eating behaviour, theoretically the thesis will contain its scope to the social identity approach. This is not to say that other social-psychological approaches are not valuable to the study of eating behaviour. However, as will be articulated in Chapter 3, the social identity approach arguably offers the most parsimonious analysis of social influence and is thus able to incorporate many previous findings in the literature on eating behaviour. Informed by a social identity approach, three key independent variables have been selected for consideration in the project. These are *shared psychological group membership* between an individual and the source of social influence, the contextually-dependent *self-categorisation* of an

individual, and the *normative content* of that category (e.g., pro-thinness vs. pro-healthy weight).

### Overview of the Thesis

To achieve its aim, the thesis begins in Chapter 2 by critically reviewing what is known about disordered eating, in particular the existing evidence for a social component to its aetiology. In addition, the current discrepancy between sociological and individual-difference approaches to the problem will be discussed. Chapter 3 presents the social identity approach to social influence and reviews existing work that suggests its value in an analysis of disordered eating. In Chapter 4, a social identity analysis of disordered eating behaviour is articulated, along with hypotheses, and the methodological approach to the project is introduced. Chapters 5-9 present empirical work testing the hypotheses derived from a social identity approach. This begins in Chapter 5 with psychometric data collected across the course of the project validating a Dieting Intentions Scale, which is used as a dependent variable in two of the later chapters. Chapters 6 and 7 focus on social influence in eating behaviour and the role of shared group membership with the source of a message. Chapter 8 addresses the role of context, specifically social identity salience, and its role in moderating predictors of dieting intentions. Chapter 9 presents a study using a clinical sample that suggests social identity-informed interventions may be promising in the treatment of eating disorders. Finally, Chapter 10 discusses the implications of the research, both in theoretical and applied domains.

## CHAPTER TWO

### SOCIAL INFLUENCE AND EATING BEHAVIOUR

#### Clinical and Subclinical Eating Pathology

Eating disorders have been of interest to the clinical psychology community since its inception. Examples of individuals exhibiting symptoms consistent with anorexia nervosa were reported in the 19<sup>th</sup> century (Gull, 1873). However, over time the nature of eating disorders likely to be encountered in clinical practice has shifted. The officially recognised disorders have also changed, as outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V-TR, 2000) and the International Classification of Diseases (ICD-10, 2010). In this section, the diagnostic criteria for the four recognised eating disorders are described and a definition of obesity is provided. Common features and typical subclinical presentations are discussed, and several critiques of the existing classification system are presented.

Anorexia nervosa is the longest recognised, rarest and most severe form of eating pathology. Its central feature is a persistent failure to maintain a minimally healthy weight. In addition, individuals meeting the criteria for anorexia nervosa exhibit intense fear of gaining weight, disturbance in the perception of their own body weight and shape and (in postmenarcheal females) the absence of at least three consecutive menstrual cycles (ICD-10, 2010; DSM-IV-TR, 2000). Two types of anorexia nervosa have been observed – a *binge-eating/purging* type, in which binge-eating or purging behaviours are present, and a *restricting* type, in which they are not. Anorexia nervosa predominantly affects young women, with a point prevalence of 0.3 per cent among young females (Hock, 2006). This is a chronic illness with poor long-term outcomes. Specifically, mortality rates for anorexia nervosa sufferers are at least five times that of a population matched for age and background, with deaths from starvation, cardiac

complications and suicide all significantly elevated (Arcelus, Mitchell, Wales, & Nielsen, 2011). Mental health outcomes are also poor, with obsessive compulsive disorder, depression and substance abuse all occurring more frequently in individuals with anorexia nervosa (Halmi et al., 1991). Treatment trials for anorexia nervosa have been disappointing (Bulik, Berkman, Brownley, Sedway, & Lohr, 2007; McIntosh et al., 2005), although there is some evidence supporting the use of family therapy for adolescents in the first two years of illness (Eisler, Simic, Russell, & Dare, 2007). However, there is no evidence-based treatment for adults with anorexia nervosa.

Bulimia nervosa is an eating disorder distinguished by binge-eating and inappropriate compensatory methods to prevent weight gain (DSM-IV-TR, 2000). Most typically, these behaviours include self-induced vomiting, misuse of laxatives or diuretics, enemas, fasting or excessive exercise. Binge eating episodes are periods of time (usually a two hour period) in which an amount of food is consumed that is objectively greater than what most people would eat in a similar timeframe. In addition, the individual experiences a lack of control over his or her eating during the episode. Individuals with bulimia nervosa place undue emphasis on body shape and weight in evaluating their self-worth. Again, two types of bulimia nervosa have been specified: a *purging* type, in which compensatory behaviours include vomiting, laxatives, diuretics or enemas, and a *nonpurging* type, where other compensatory behaviours are used. Typically, bulimia nervosa sufferers are females aged 15-25 years, with a modal age of onset at 18 (Stice, Killen, Hayward, & Taylor, 1998). Unlike in anorexia nervosa, bulimia nervosa is not usually associated with low weight but rather a weight in the healthy range (Eddy, et al., 2008). Prevalence of bulimia nervosa among young females is approximately one per cent (Hoek, 2006). The physical health complications of bulimia nervosa can be severe, both as a result of bingeing (e.g., ruptured stomach) and purging (e.g., oesophageal damage, severe tooth wear, prolapse; Johnson, Spitzer, &

Williams, 2001). Most serious are cardiac abnormalities secondary to electrolyte imbalance. Bulimia nervosa is also associated with particularly high rates of comorbid depression (Bushnell et al., 1994). Treatment efficacy for bulimia nervosa has been demonstrated for cognitive-behavioural therapy and interpersonal therapy (Agras, Walsh, Fairburn, Wilson, & Kraemer, 2000; Fairburn, Jones, Peveler, Hope, & O'Connor, 1993).

Although anorexia nervosa and bulimia nervosa are the most well-known eating disorders, the majority of individuals diagnosed with an eating disorder (approximately sixty per cent, Fairburn et al., 2007) actually receive a diagnosis of Eating Disorder Not Otherwise Specified (EDNOS). This latter category applies to any individual with significantly disordered eating that does not meet criteria for a specific eating disorder. This might include, for instance, behaviours consistent with anorexia nervosa without a cessation of menses, or at a minimally healthy weight, or bingeing and purging behaviours that are not sufficiently frequent (at least twice a week for three months) to be described as bulimia nervosa. Another common form of EDNOS is binge-eating disorder, described separately below. Research has suggested that the amorphous category of EDNOS encompasses some forms of eating disorder that are as severe as the specific eating disorders (Wonderlich, et al., 2007). Although varied, the population affected by EDNOS is broadly similar to that of disordered eating more generally – predominantly young females, although EDNOS affects individuals across the weight spectrum. Outcomes for EDNOS individuals have been shown to be no more positive than for bulimia nervosa (Thomas, et al., 2009). Treatment efficacy for EDNOS has not been established, as the diversity of symptoms in individuals receiving the diagnosis poses a significant barrier to designing and implementing effective treatments (Fairburn, et al., 2007).

The final form of eating disorder that has been recognised by the clinical research community is Binge Eating Disorder (Striegel-Moore & Franko, 2003). This disorder is distinguished by episodes of binge eating (identical to those seen in bulimia nervosa) without the regular use of compensatory behaviours. Binge eating episodes are associated with guilt and distress (DSM-IV-TR, 2000). Unlike other forms of eating disorder, Binge Eating Disorder is seen equally in men and women and occurs in adults of all ages – most commonly in 45-54 year olds. Individuals with Binge Eating Disorder are often obese, although this is not a requirement for diagnosis. Physical health consequences are secondary to obesity (Johnson, et al., 2001) and identical to those outlined in the section on obesity below. Mental health comorbidities are also significant, with rates of depression particularly elevated. Binge Eating Disorder is not included as a diagnosable category in the current edition of the diagnostic manual (DSM-IV-TR, 2000); rather it is listed in the research criteria that are intended to guide investigation into the disorder's legitimacy as a separate category and its associated features. At present, therefore, the official diagnosis received by a person with the symptoms described here would be EDNOS. However, Binge Eating Disorder will be listed as a separate and full disorder in the DSM-V, due to be released in 2013 (American Psychiatric Association, 2011). Given the relatively recent description of Binge Eating Disorder, it is encouraging that evidence suggests the effectiveness of cognitive-behavioural treatment (Brownley, Berkman, Sedway, Lohr, & Bulik, 2007; Wilfley et al., 2002).

Obesity is not a mental health condition, but rather a physical condition of excess weight (ICD-10, 2010). It is typically defined by a Body Mass Index (weight in kilograms/height in metres<sup>2</sup>) above 30. The associated health risks of obesity include Type II diabetes, cardiovascular disease, osteoarthritis and many cancers (Haslam & James, 2005). It is also important to distinguish obesity from being overweight (a BMI

between 25-30), as negative health consequences of being overweight have not been convincingly demonstrated (Lewis et al., 2009). Although obesity is not an eating disorder as such, if *disordered eating* is defined as a long-term pattern of eating behaviours that have undesirable health consequences for an individual (diagnosable or otherwise), obesity can be conceptualised as a possible outcome of such behaviours (Hill & Melanson, 1999; Kopelman, 2007).

Among researchers and, particularly, public commentators, it has been common to treat the problems of eating disorders and obesity as unrelated or even opposed (e.g., Barry, Brescoll, Brownell, & Schlesinger, 2009; Haussegger, 2009; Turner, 2011). Particularly in the realm of prevention, for example, it is common for school children to receive interventions designed to *increase* body and diet awareness (with the aim of reducing obesity) as well as interventions designed to *reduce* the emphasis placed on the body and diet (with the aim of bolstering body image, Neumark-Sztainer, 2003). Such conflicting messages stem from limited integration of the literature on over-eating and under-eating pathologies. Empirical evidence suggests that eating disorders and obesity are more similar than intuition may suggest (Day, Ternouth, & Collier, 2009). The link is apparent when one focuses on specific eating behaviours rather than categorical diagnoses. For instance, dangerous dieting behaviours (e.g. fasting and purging) predict both the onset of a diagnosable eating disorder (Stice, Ng, & Shaw, 2010) and weight gain over time (van den Berg & Neumark-Sztainer, 2007). At a population level, disordered eating is positively associated with body weight (Darby et al., 2009; Mond, et al., 2009). Some researchers and one treatment protocol have identified this overlap, and proposed a *transdiagnostic* model of disordered eating (Fairburn, Cooper, & Shafran, 2003; Wade, Bergin, Martin, Gillespie, & Fairburn, 2006). A transdiagnostic approach focuses on key similarities across the eating disorders, rather than conceptualising them as distinct in their presentations and aetiologies. This approach is



more consistent with some emerging evidence, for instance, that people tend to move between different eating disorder diagnoses over time (Eddy, et al., 2008; Fitcher & Quadflieg, 2007), and is better able to account for the large proportion of cases which present with EDNOS (Thomas, et al., 2009). The transdiagnostic approach notes three features common to all disordered eating: overvaluation of eating, shape and weight (that is, basing one's self-worth on these characteristics to a greater degree than the general population), body dissatisfaction and behavioural efforts to lose weight. This is not to say that important differences between diagnostic categories do not exist, but rather that eating pathology is best conceptualised as a spectrum, ranging from problems of under-eating (i.e., anorexia nervosa) through to problems of over-eating (i.e., binge-eating disorder and obesity), with body dissatisfaction, dangerous dieting and bulimia nervosa falling in the middle of the spectrum (Neumark-Sztainer, 2003). Another key reason to suspect an overlap in the aetiology for various forms of under-eating and over-eating pathology is the concurrent increase across the spectrum of disordered eating, evidence of which is presented in the next section.

### **Disordered Eating Behaviour: An Escalating Societal Problem**

A large body of evidence has accumulated suggesting that unhealthy eating behaviour of many kinds is increasing in developed nations. Obesity has drawn the most attention, and it now affects more than a quarter of the adult population in Australia (Australian Bureau of Statistics [ABS], 2007). The Western epidemic of obesity is worthy of the recent media attention it has received due to its very rapid increase in prevalence and its associated health consequences. However, it is misleading to focus purely on the increase in obesity without considering the simultaneous rise in clinical eating disorders. Bulimia nervosa cases have at least trebled since 1988 (Currin, Schmidt, Treasure, & Jick, 2005). Even anorexia nervosa, which has been observed for hundreds of years and is often attributed to primarily neurobiological causes, has tripled

in incidence among 15-25 year old females across the 20<sup>th</sup> century (Lucas, Crowson, O'Fallon, & Melton, 1999). Of the three most common chronic conditions in adolescence – obesity, asthma and bulimia nervosa – two are a problem of eating behaviour (Gonzalez, Kohn, & Clarke, 2007). The increase in subclinical disordered eating has been even more marked than for obesity and eating disorders. In one study, the *majority* of teenage girls reported engaging in dangerous dieting (Neumark-Sztainer, 2003). Population surveys in Australia reveal that subclinical eating disorder symptoms have at least doubled since 1995 (Hay, Mond, Buttner, & Darby, 2008). In fact, comorbid obesity and eating disorder behaviours have increased more rapidly in Australia than either condition alone (Darby, et al., 2009). It is evident, then, that problems relating to both over-eating and under-eating are becoming more prominent at a population level.

Perhaps the best indication of the rise of disordered eating behaviour is the rate at which the subsequent editions of the Diagnostic and Statistical Manual of Mental Disorders (DSM) have become out-dated descriptions of individual presentations. The majority of individuals diagnosed with an eating disorder receive a diagnosis of Eating Disorder Not Otherwise Specified: their problem is sufficiently severe and debilitating to warrant clinical attention, but it does not follow the expected pattern of the recognised eating disorders. This is despite both bulimia nervosa and binge-eating disorder being introduced as additional DSM categories in the last thirty years (Sunday et al., 2001) to accommodate increasing presentations of eating-related problems. Binge-eating disorder, which will not be fully recognised in the DSM until the upcoming fifth edition, is present in over three per cent of the Australian population (Hay, 1998). Thus, it is not only that diagnosable eating disorders and obesity are increasing, but that the very nature of eating problems is changing.

Disordered eating behaviour takes a significant toll, on both the individual and the society in which he or she lives. Obesity is now considered the leading preventable cause of death worldwide (Barness, Opitz, & Gilbert-Barness, 2007), and some researchers have forecast that life expectancy will fall in developed countries if rates of obesity continue to rise (Peeters et al., 2003). Of course, stigma and social exclusion also cause significant impairment in the functioning and wellbeing of obese persons, particularly in the areas of education, employment and healthcare (Puhl & Brownell, 2001). The total societal cost of obesity is estimated at over \$21 billion per annum in Australia (ABS, 2007). At the other end of the spectrum, anorexia nervosa takes a similarly alarming toll, due to a mortality risk that is higher than other mental illnesses. Health complications of bulimia nervosa are also severe, as electrolyte imbalance may lead to cardiac abnormalities and even death (Pomeroy & Mitchell, 2002). The economic burden of eating disorders is similarly estimated to be high (comparable to schizophrenia) due to long hospital stays and poor treatment outcomes (Simon, Schmidt, & Pilling, 2005; Striegel-Moore, Leslie, Petrill, Garvin, & Rosenheck, 2000). Eating disorders are associated with particularly high impairments in psychosocial functioning, even when compared to other mental illnesses such as anxiety and depression (Johnson, et al., 2001; Mond et al., 2004). In fact, even among those who do not meet the criteria for an eating disorder, disordered eating symptoms are associated with impairments in psychosocial functioning and increased primary care consultations (Mond, et al., 2009). In light of these health, social and economic costs, it is essential that research addresses the question of why disordered eating behaviours are increasing and how interventions can be improved.

Despite the obvious need for effective intervention, the success rates for treatment of disordered eating have been incremental at best (Butler, Chapman, Forman, & Beck, 2006; Wilson, 2005). Cognitive-behavioural therapy (CBT), the major success

story of clinical psychology, has been less effective for eating disorders than other mental illnesses, and trials are often plagued by high drop-out rates and poor responses (Mahon, 2000). The most promising approach has been Fairburn's transdiagnostic CBT-Enhanced for eating disorders, which is based on a theory that conceptualises all eating disorders as sharing a core pathology (Fairburn, 2008). This treatment has been demonstrated to be effective for bulimia nervosa and binge-eating disorder, although full recovery only occurs in approximately 50% of cases (Grave, 2010). Moreover, CBT treatment outcomes for anorexia nervosa are poor, with a meta-analysis showing that psychological interventions worsen prognosis relative to medical-only care (McIntosh, et al., 2005). For adolescents, family therapy has been shown to have some long-term success, while no treatment has been demonstrated to be effective for adults (Bulik, et al., 2007; Eisler, et al., 2007; Fairburn, 2005). Treatments for obesity have been, if anything, less successful. A variety of methods such as behavioural therapy, support groups, weight-loss programs and psychotherapy lead to short term weight loss. However, no non-medical intervention has been successful in preventing weight regain, which occurs in the vast majority of cases (Cooper et al., 2010). At present, the best-practice treatment for severe obesity is bariatric surgery (Sjöström et al., 2007). However, the expense and risk of medical complications have meant that this is usually viewed as a "last-resort" intervention.

The growing problem of disordered eating coupled with the limited effectiveness of clinical interventions points to the need for new approaches to the conceptualisation of unhealthy eating behaviours. The following section explores evidence suggesting that the missing component in dominant models of disordered eating is social in nature.

### **Evidence of Social Influence in Disordered Eating**

At first glance, the determinants of eating behaviour might seem self-evident – humans eat to fulfil biological needs for sustenance and nourishment. However, a significant body of research, to be reviewed in this section, has demonstrated that social-psychological factors strongly influence eating. Literature will be reviewed that suggests: i) disordered eating behaviours can be predicted by demographic and social characteristics, ii) people are subject to influence in their eating habits primarily from similar others, and iii) eating behaviour in the lab is closely modelled on fellow participants. Evidence will be presented that social influence is a powerful determinant of eating in both clinical and nonclinical samples.

At a population level, it is possible to accurately predict the distribution of disordered eating behaviours based on demographic characteristics. Most notably, eating disorders are predominantly observed in females, with anorexia nervosa 19 times more likely to be diagnosed in women (Hoek & van Hoeken, 2003). However, eating problems related to overeating, specifically binge-eating disorder and obesity, are equally likely to be present in both women and men (ABS, 2007; Striegel-Moore & Franko, 2003). Age is also a predictor of risk for disordered eating. 15-25 years of age appears to be a peak period of disordered eating symptoms including body dissatisfaction, unhealthy dieting and purging (Hay, 1998; Wade, 2007). As age increases, so does obesity risk (ABS, 2007), while binge-eating remains relatively stable across the adult lifespan (Mond, et al., 2009). There has been some debate over the predictive utility of socioeconomic status (SES) for disordered eating. The majority of evidence suggests little relationship between SES and eating disorders, however, low SES is an established risk factor for obesity in many developed nations (Dykes, Brunner, Martikainen, & Wardle, 2004). Research based in the United States has also identified variation across ethnic background, revealing that African Americans and

Hispanic Americans are at higher risk of obesity (Thompson et al., 2009; Wade, 2007), while in Australia, Indigenous communities are at a higher risk of a swathe of weight-related health problems (Australian Medical Association, 2002). Finally, the increasing prevalence in disordered eating, discussed in the previous section, is only observed in advanced Westernised cultures (Miller & Pumariega, 2001). Therefore, disordered eating differs across social groups in a predictable manner, suggesting that the social environment may be an important factor in the aetiology of disordered eating.

Although variation across culture, gender, age, SES and ethnicity may suggest a social influence process, it is also consistent with non-social models and is seen in many physical illnesses with established biological mechanisms (e.g. heart disease [Castelli, 1984], Alzheimers [Hendrie, 1998] and cancer [Schottenfeld & Fraumeni, 2006]). However, variation between groups more definitively 'social' in nature has also been observed. For example, young people entering university appear to be at an elevated risk of both weight gain (Holm-Denoma, Joiner Jr, Vohs, & Heatherton, 2008) and disordered eating behaviours (Douglas et al., 1997). Rates of bulimia nervosa are reportedly as high as twenty per cent among some sororities (Crandall, 1988; Taylor et al., 2006). Dance and modelling students are at a much higher risk of eating disorders and subclinical disordered eating, with more than six times the rate of anorexia nervosa found in the most competitive schools (Garner & Garfinkel, 1980). Evidence that supports the argument that these group-specific risks are social (and hence malleable) comes from cross-cultural research indicating that disordered eating is 'spreading' to new nations as they become increasingly developed and globalised (Makino, Tsuboi, & Dennerstein, 2004). For instance, Fijian girls' risk of disordered eating increased with the widespread introduction of Western television programs (Becker, Burwell, Gilman, Herzog, & Hamburg, 2002). A girl's risk of disordered eating could be predicted by not only her own television-viewing habits, but also those of her friends (Becker, 2004). In

Hong Kong, prevalence of body dissatisfaction and eating disorders have both increased, from negligible rates prior to 1990, to rates similar to those of other developed countries (Nasser, Katzman, & Gordon, 2001). Therefore the evidence is clear that one's risk for disordered eating behaviours is in large part due to features of his or her social environment.

However, even the clustering of disordered eating in particular social groups does not necessarily implicate a psychological mechanism in its aetiology. Differing exposure to environmental risk factors could be one alternative explanation, and one that is commonly invoked when explaining similar distribution patterns of physical illness (e.g. asthma rates may differ due to different levels of air pollution in different cities; [Sunyer et al., 1997]). Environmental risk factors cannot account for the distribution of disordered eating, however. Research investigating group membership and social affiliation suggests that *modelling* of friends and peers is the mechanism through which disordered eating comes to cluster in social groups. For instance, research with adolescents indicates that dieting among friends and weight-based teasing by friends predict the onset of disordered eating behaviours (Lieberman, Gauvin, Bukowski, & White, 2001; Paxton, Eisenberg, & Neumark-Sztainer, 2006). Furthermore, social network analyses have established that norms in friendship cliques regarding body image and eating habits predict individual eating behaviours (Paxton, Schutz, Wertheim, & Muir, 1999) and that an individual's BMI can be predicted from that of his or her close friends (Valente, Fujimoto, Chou, & Spruitz-Metz, 2009). Within the university setting, it has been found that sororities both attract women at risk of disordered eating and increase the risk of developing disordered eating proportional to the length of an individual's residency (Baslow, Foran, & Bookwala, 2007). Furthermore, specific norms exist within some sororities that promote disordered eating, and being a *popular* member of a cohesive group in this context has been found to

increase individual risk (Crandall, 1988). Conversely, social support for healthy eating and exercise habits in the college environment is associated with healthier individual behaviours (Gruber, 2008).

Perhaps the most important and influential study demonstrating the role of social influence in eating behaviour is prospective social modelling research revealing that obesity is 'socially contagious' (Christakis & Fowler, 2007). This research makes use of Framingham Heart Study data from 12 067 participants over a period of 32 years. Obesity was found to spread through social networks over time such that when an individual became obese, his or her friends and relatives were at a higher risk of also becoming obese. These findings occur regardless of a) geographical distribution, or b) the selective formation of social ties among obese persons, demonstrating that the spread of obesity is likely to be due to *social influence*. Although this research remains powerful evidence for the role of social influence in eating behaviour, its methodology has more recently come under criticism (Lyons, 2011). Specifically, the capacity to distinguish between social contagion and homophily (that is, the greater likelihood of making or staying friends with others that have similar traits) in observational studies has been questioned (Shalizi & Thomas, 2011), and as a consequence social influence as a *causal* mechanism for changes in eating behaviour remains in doubt. Only experimental research can overcome these criticisms (reviewed in the next paragraph). Nevertheless, the research consensus is that social influence is likely to play an important role in the aetiology of disordered eating.

Laboratory research investigating social influence in eating behaviour has confirmed the importance of social norms (Herman & Polivy, 2005). In a typical experiment in this paradigm, participants will present for what they believe is an a non-food related interpersonal or cognitive task (e.g., Salvy, Jarrin, Paluch, Irfan, & Pliner, 2007) or a 'taste test' task (e.g., Leone, Pliner, & Herman, 2007). They are then given



the opportunity to eat food provided by the experimenters. The norms are usually provided either by a confederate eating with participants (co-eating studies [Herman, Roth, & Polivy, 2003]) or by written information about what was consumed by prior participants (the remote eater paradigm, [Feeney, Polivy, Pliner, & Sullivan, 2011; Hermans, Salvy, Larsen, & Engels, in press]). One finding that has been practically ubiquitous in this field is that laboratory participants will conform to what they believe is the norm for food consumption among fellow participants, mimicking both the level of consumption and choice of foods (Pliner & Chaiken, 1990). This modelling effect is robust, and research has found that it is not moderated by weight status (Conger, Conger, Costanzo, Wright, & Matter, 1980), dieting status (Polivy, Herman, Younger, & Erskine, 1979) or personality characteristics (Herman, Koenig-Nobert, Peterson, & Polivy, 2005). Even participants who fasted for over 24 hours still varied their intake to conform to social cues signalling an appropriate level of food intake (Goldman, Herman, & Polivy, 1991). Research has suggested that behavioural mimicry may at least partially account for modelling of eating (Hermans et al., 2012). However, such mimicry is not indiscriminate, with modelling enhanced for similar others (e.g., same gender, ethnicity, or weight) and familiar others (e.g., friends or family, Salvy, Jarrin, et al., 2007). The power and ubiquity of this effect suggests that eating is a behaviour that is particularly sensitive to social influence.

### **Sociocultural Explanations**

Despite extensive evidence for the role of social influence in shaping eating behaviour, how this may relate to the increase in disordered eating is poorly understood. Previous research attempting to understand the precipitous rise in disordered eating behaviour can be crudely divided into two categories: *sociocultural* and *individualistic* explanations. The most consistent with the evidence reviewed thus far is a category of research that can broadly be described as sociocultural. This literature has identified a

number of features of the social environment that make disordered eating more likely. Although mostly conducted outside the field of psychology (e.g., by sociologists or public health researchers), this literature will be reviewed here as it offers a relevant and compelling narrative for current trends in disordered eating.

To begin with obesity, a common line of reasoning is that the modern environment is *obesogenic*, in that urban density and the hyper-availability of palatable food make weight gain almost inevitable (Swinburn, Egger, & Raza, 1999). For the bulk of human evolutionary history, nourishing food has been scarce and difficult to obtain (Ulijaszek, 2002). In such an environment, a preference for high-fat and high-sugar foods (historically, meat and fruit respectively) may have been evolutionarily adaptive, as it ensured intake of these energy-dense foods when they were available (Milton, 1999, 2000). Additionally, the tendency toward over-consumption is observed in almost all mammals when in a food-rich environment (Ulijaszek & Lofink, 2006). This would have been advantageous prior to agriculture, when weight gain during plentiful times might have been protective during inevitable and imminent scarcities (Cordain et al., 2005). However, the agricultural revolution and technological innovation have allowed humans to progress to a point where they can readily control food supply. In the last century in particular, our capacity to process food has enabled the production of highly palatable food in large variety and quantity. Furthermore, technology (particularly automobiles) has reduced average calorie expenditure far below that required for weight maintenance (Saris et al., 2003). Thus, the increase in obesity is broadly attributed to a social environment that encourages higher calorie consumption while discouraging calorie expenditure (Dixon & Broom, 2007).

To provide one example of the obesogenic environment in action, consider rapid increases in portion sizes available for purchase. In one study (Jeffery et al., 2007), women were provided with lunches for an 8 week period. Lunches contained an average

of either 767 kilocalories (kcal) or 1528 kcal, depending on study condition. Across the 8 week period, the large portion group consumed an average of 332 kcal more at lunch, resulting in an average intake 278 kcal higher over the following 24 hours. There was no evidence for compensation for this increased consumption over time (e.g., by eating less at other meals), and participants in the large portion group gained an average of 0.64kg over the course of the study. These findings are an important indication that cultural shifts in food availability may impact significantly on eating behaviour and weight at a population level.

Although the obesogenic environment can be invoked to explain increasing rates of over-eating, a quite different sociocultural explanation is needed to account for problems of under-eating. Western developed countries are said to hold a *thin ideal*, in that almost all successful and attractive women are portrayed by the media as unrealistically thin (Cusamano & Thompson, 1999). Cultural ideals of what defines beauty have shifted slowly but drastically over the last century to endorse thinness as both necessary and sufficient. Research has confirmed this gradual trend toward valuing thinness, for example by tracking the physical dimensions and BMI of centrefold models in Playboy magazine (Seifert, 2005) or contestants in the Miss America pageant (Wiseman et al., 1992). The argument is that this shift has had a significant psychological impact on women due to unfavourable social comparison, motivating them to reduce their weight in order to obtain this ideal. However, as ideal weights are often physiologically unattainable (Norton, Olds, Olive, & Dank, 1996) and dieting is a largely ineffective weight reduction strategy (Hill, 2004; Lowe & Timko, 2004), women may engage in increasingly harmful and extreme weight-loss strategies over time. Thus, eating disorders and body dissatisfaction are attributed to the discrepancy between ideals of female attractiveness and actual body shapes (Dittmar, Halliwell, & Stirling, 2009), a 'gulf' that is widening due to the obesity epidemic.

A significant body of evidence exists supporting the link between exposure to the thin ideal and increased body dissatisfaction and disordered eating. For example, even in a brief laboratory manipulation, advertising containing very thin models has been shown to decrease immediate body satisfaction among women compared to advertising containing healthy-weight models (Levine & Murnen, 2009). Interaction with a thin peer is also sufficient to reduce short-term body satisfaction (Krones, Stice, Batres, & Orjada, 2005). Research has also demonstrated that women rate celebrities as more attractive when they are digitally altered to look underweight, particularly if their body satisfaction is already low (Willinge, Touyz, & Charles, 2006). This effect is not limited to adults: five to eight year old girls express more body dissatisfaction and nominate a thinner ideal after playing with Barbie dolls (Dittmar, Halliwell, & Ive, 2006). In terms of more long-term consequences, van den Berg, Neumark-Sztainer, Hannan and Haines (2007) conducted a longitudinal study investigating the effect of reading women's magazines that heavily reinforce the thin ideal. They found that women who were more exposed to the thin ideal (read more magazines) had a much higher rate of disordered eating, independent of eating behaviour at baseline. Therefore, the thin-ideal in Western culture appears to play an important role in precipitating the rise in disordered eating behaviour.

### **Individual-Difference Explanations**

The other primary area of research that has sought to understand the aetiology of disordered eating behaviour is psychology. Upon review of this literature (which is detailed below), it is apparent that psychological research has been primarily individualistic in its orientation and grounded in the personality or clinical disciplines. Typically, psychological research on eating disorders has focused on facets of individuals that might place them at risk for the development of disordered eating. In particular, two meta-theoretical psychological approaches to eating behaviour can be

identified. The first focuses on individual pathology that increases vulnerability to disordered eating. The second focuses on individual characteristics that increase vulnerability to social influence (and, subsequently, disordered eating). Each of these domains will be discussed in turn.

Psychological disorders, as defined by psychiatrists and clinical psychologists, represent pathology that a) is statistically abnormal, and b) causes significant impairment to the individual (DSM-IV-TR, 2000). Given this classification system, it is perhaps unsurprising that efforts to understand the development and maintenance of eating disorders has focused on individual-level pathology – that is, characteristics that unfavourably distinguish people with eating disorders from the general population. A wide range of personality features have been identified as being involved in the development of disordered eating, and as such only a brief review is possible here. Some of the characteristics associated with under-eating include perfectionism (Cassin & von Ranson, 2005), need for control (Vitousek & Manke, 1994) and low self-esteem (Shea & Pritchard, 2007). All of these personality features are more prevalent among people with eating disorders, and some prospective research has suggested they emerge prior to eating problems (Paxton, et al., 2006; Tyrka, Waldron, Graber, & Brooks-Gunn, 2002). Theoretically, these researchers have typically framed under-eating as a maladaptive strategy used to buffer the negative effects of these personality characteristics. That is, a severely-restricted eating regimen is hypothesised to provide short-term satisfaction of the need for perfection or control, and is thus reinforced (Fairburn, Shafran, & Cooper, 1999). Subsequent weight-loss is likely to be socially sanctioned, providing positive feedback that will bolster self-worth in the short term for an individual with low self-esteem, and be similarly reinforced (Cockell et al., 2002).

For binge-eating and obesity, a separate set of psychological precursors has been proposed, including impulsivity (Yeomans, Leitch, & Mobini, 2008), poor self-

monitoring (Baker & Kirschenbaum, 1993) and emotional dysregulation (Cassin & von Ranson, 2005). A broad theme among these personality characteristics is the premise that binge-eating is associated with deficits in self-control (Heilbrun & Bloomfield, 1986; Tangney, Baumeister, & Boone, 2004). Theoretically, the proposed mechanism is that eating unhealthy food is rewarding in the short-term, and individuals who over-eat lack the capacity to inhibit the urge to eat, particularly in the face of strong negative emotion (Dawe & Loxton, 2004). Although it is difficult to causally link personality characteristics to disordered eating, this line of research has certainly demonstrated robust *associations* between disordered eating and a variety of personality variables.

Although falling outside the discipline of psychology, genetic makeup and metabolic processes are two forms of individual difference that have received an overwhelming degree of research attention. Anorexia nervosa and obesity, in particular, have been suggested to have a genetic basis. In fact, approximately 85% of past research into obesity has focused on identifying genes or abnormalities in biological functioning that might explain an individual's weight gain (Hill & Melanson, 1999). Several genes governing the expression and regulation of hormones, such as leptin and ghrelin, are implicated in the development of obesity (Kalra, Bagnasco, Otukonyong, Dube, & Kalra, 2003). In anorexia nervosa, abnormalities in neuroendocrine functioning (in particular, of serotonin) have been found to pre-date the development of an eating disorder and persist after treatment (Kaye, Frank, Bailer, & Henry, 2005). Much like the personality-based approaches, genetic and metabolic research can assist in identifying which individuals in a given population are most likely to display disordered eating behaviour.

Another common approach to understanding disordered eating has attempted to address the interaction between the sociocultural factors outlined above and individual risk factors. These models attempt to account for the fact that, although all people are

exposed to the society in which they live, only a subset of those will develop disordered eating. Specifically, variables which increase or decrease individual vulnerability to social influence have been studied, in the hope of bridging the gap between environmental phenomena and individual behaviours. For example, a number of factors have been found to moderate the impact of the societal thin ideal. Women high in self-determination (Pelletier & Dion, 2007) or self-concept clarity (Vartanian, 2009) are less likely to have internalised societal standards of attractiveness. Other research has suggested that non-conformity to societal norms (measured as a stable individual characteristic) may be protective for women (Twamley & Davis, 1999). Similarly, research has indicated that a number of factors may moderate the impact of the obesogenic environment, such as heightened sensitivity to food cues (relative to internal cues of hunger or satiety), thus elevating the risk of binge-eating or obesity (Burton, Smit, & Lightowler, 2007; Lowe & Kral, 2006). The feature common to all of these models is that they look to identify features in an individual – such as confidence in one's self-image – that might protect them from being influenced by inherently *damaging* cultural or environmental realities.

A popular approach in this literature has been to classify individuals based on the extent to which they have internalised the thin ideal of Western culture. That is, thin-ideal internalisation is the relative degree to which an individual endorses the idea that thinness is desirable, for him or herself and others. This has been the most comprehensive effort to date to account for *both* the sociocultural and individualistic explanations for disordered eating. Specifically, the thin-ideal internalisation model acknowledges that cultural standards and ideals regarding appearance do not influence all individuals equally. Instead, these standards must be *internalised*, that is, accepted psychologically as valid, before behaviour will be influenced. Although not the focus of the model, individual differences in thin-ideal internalisation are presumably the result

of personality variation, or earlier or more intense exposure to the thin ideal. Two widely used measures of thin-ideal internalisation are the Sociocultural Attitudes Towards Appearance Scale (now in its third version the SATAQ-3, Thompson, Van den Berg, Roehrig, Guarda, & Heinberg, 2004) and the Ideal Body Internalisation Scale – Revised (IBIS-R, Stice & Agras, 1998). Research using these measures has demonstrated that individuals high in thin-ideal internalisation are more vulnerable to negative social influence. For instance, they are more likely to experience a drop in body satisfaction following exposure to thin-ideal media (Dittmar, et al., 2009) and exhibit increased negative affect and disordered eating over time (Thompson & Stice, 2001).

### **The Value of a Social-Psychological Approach**

The current state of the literature demonstrates that a great deal of work has been done to elucidate the causes of disordered eating, including its social and psychological causes. Previous research has established a) that disordered eating is increasing, b) this is due to features of the social environment and c) certain individuals will be more vulnerable than others. What, then, does this thesis add to our understanding of disordered eating? This section provides a critique of existing approaches and outlines the value of a social-psychological approach, both in integrating existing work and in specifying the mechanism of action of identified predictors.

Individual-difference approaches share a central flaw that limits their usefulness in explaining disordered eating behaviours. That is, in relying on a model of illness that locates pathology within the individual, they fail to explain the process by which increasing numbers of individuals are exhibiting pathology. As an example, although individuals with eating disorders may experience low self-esteem which has an onset prior to the development of the disorder, it does not follow that low self-esteem causes eating disorders. If a population-level change had occurred in any of these personality



characteristics, this too would warrant explanation. Moreover, evidence suggests that self-esteem has actually increased at a population level during the same time-period that eating disorders have become more widespread (Twenge & Campbell, 2001), so the direction of this effect undermines the proposed causal relationship between self-esteem and disordered eating. The same criticism applies to other personality-level variables. Genetic and metabolic factors are, if anything, more implausible as an explanation for the sudden and dramatic increase in obesity and other forms of disordered eating. The timescale on which population-level changes occur in genes and metabolism means that no central role for these factors makes sense in an explanation for increased rates of disordered eating.

Explanations which address individual differences in vulnerability to social influence are somewhat more nuanced, in that they acknowledge the role of the social environment in shaping behavioural outcomes. However, these approaches have in common the assumption that social influence is inherently deleterious to an individual's wellbeing. They are therefore unable to account for the positive effects of social influence, such as norms that endorse healthy eating and exercise (Gruber, 2008; Terry & Hogg, 1996).

Although individual-difference variables cannot account for the rise in disordered eating, their importance in explaining other dimensions of the problem of disordered eating should not be dismissed. This research is vital, for instance, in assessing an individual's risk and designing a treatment plan. Individual-difference approaches are best suited to explaining why an individual differs from the population, and are not equipped to explain the central question of this thesis. That is: why is the population itself becoming more pathological?

On the other hand, sociocultural explanations for social influence in disordered eating offer more promise. By focusing on society as the level of analysis, this research

has the capacity to identify variables responsible for the large-scale changes in eating behaviour that have been observed. Another strength of the sociocultural approach is that it may explain why men and women are equally vulnerable to binge-eating and obesity (since all members of a community are exposed to the obesogenic environment), but primarily women are at risk of other forms of disordered eating (the thin-ideal primarily applies to women; Thompson & Stice, 2001).

Although sociocultural research holds much potential and has made a significant contribution, it too has limitations. The bulk of this work has been done by social scientists or researchers in the humanities, and lacks the quantitative and methodological rigour of the individual-difference research. Many of the proposed effects are impossible to test scientifically – for instance, collectively-held ideals of beauty cannot be manipulated experimentally. Perhaps as a result of this, much of the literature is primarily descriptive in nature. These models lack a broader theoretical framework to explain either the manner in which environmental influences are internalised (e.g., how cultural standards are represented psychologically) or the psychological processes of individuals with disordered eating (e.g., how thinness and eating are subjectively conceptualised). Unfortunately, this makes the sociocultural approach necessarily vague in its suggestions for intervention and provides little guidance for health practitioners or policy makers in directly addressing the problem of disordered eating (with some notable exceptions, e.g. Magnus, Haby, Carter, & Swinburn, 2009). A final criticism of this approach has been its inability to predict who is at higher risk of disordered eating within a community, which is a strength of the individual-difference approaches.

Therefore, existing explanations for social influence in disordered eating have significant shortcomings. However, it does not necessarily follow that a social-psychological approach to health (and to eating in particular) adds value or parsimony.

Health research is a crowded landscape, with disciplines as diverse as biology, sociology and anthropology making contributions, in addition to the classic health professions. Can social psychology offer a uniquely valuable contribution? Perhaps an obvious solution to the limitations of existing approaches would be to simply make use of *both* sociocultural and individual-difference factors in order to explain societal-level changes and predict an individual's risk. However, the relationship between these levels of analysis is unlikely to be simply additive, and this would also leave unspecified the mechanism through which individual behaviour is shaped by sociocultural factors. This is where a social-psychological analysis is uniquely suited to fill the current gap in the literature. In studying social phenomena, social psychologists utilise scientific methodology at three levels: the society, the group and the individual (Turner & Oakes, 1997). Furthermore, social-psychological theory has articulated the *interaction* between these three levels of analysis, specifying the processes through which macro-level phenomena (e.g., culture) influences micro-level phenomena (e.g. behaviour), and vice versa. In addition, social psychology has emerged from a positivist tradition that utilises controlled experiments and statistical techniques to establish causality (Schlenker, 1974). Therefore, a social-psychological analysis can provide both the theoretical and methodological tools to bridge the gap between individual-difference and sociocultural analyses of disordered eating.

An example may be of value here in demonstrating the additional utility offered by a social psychological approach to health. Obesity is ultimately defined in biological terms: a body mass index above  $30\text{kg/m}^2$ . This accumulation of excess body fat can be predicted through a wide range of variables. Perhaps most obvious are those at the biological level – family history and genetic mutations (Barness, et al., 2007). However, a sole focus on these biological risk factors would be problematic for a number of reasons. Firstly, many of them are immutable and therefore do not provide opportunity

for intervention. Secondly, biological risk factors are often expensive to monitor and consequently irregularity may only become apparent at a late stage, when the disease process (e.g., obesity) is already apparent. Thirdly, and perhaps most importantly, biological-level variables often do not account for the majority of variance in the health condition of interest (Hill & Melanson, 1999). For this reason, health professionals and researchers have embraced analysis at the behavioural and psychological level. In the case of obesity, risk factors at this level include individual behaviours such as saturated fat intake and aerobic exercise (Haslam & James, 2005; Saris, et al., 2003), as well as personality characteristics that increase risk such as poor self-control or emotional dysregulation (Hibbscher & Herman, 1977; Tangney, et al., 2004). Attention to behaviours and psychology adds greatly to our capacity for intervention and prevention in the majority of health conditions, and the work of clinical and health psychologists has been highly influential in increasing attention to the individual-level of analysis. This thesis will refer to models of health which attend only to the biological and individual-difference levels of analysis as *biomedical* models.

However, there is a third level of analysis that is often neglected by health professionals and researchers. This is the sociocultural level, which considers societal and cultural phenomena that modify the likelihood of health-related outcomes. The majority of health research that is conducted by sociologists, anthropologists and epidemiologists concerns this level of analysis. Importantly, risk factors identified at the sociocultural level are often as powerful (if not more powerful) than risk factors at the individual or biological levels. For example, obesity can be predicted from an individual's nationality, SES or level of education (Dixon & Broom, 2007; Dykes, et al., 2004). The value of these predictors is substantial – obesity rates vary between countries from 3.2% to 30.6% of the adult population (OECD, 2005) and from 0.1% to 14% of the school-age population (Wang & Lobstein, 2006). However, despite the

value of the sociocultural analysis, it is notably absent from discourse regarding obesity among health professionals and many researchers.

One possible reason for this is that most researchers (along with most treating health professionals) are not comfortable with the political implications of the sociocultural analysis – if poverty causes obesity, this suggests possible health benefits of wealth redistribution. In addition, some health professionals may see little variance in these sociocultural factors, for example, if they work in a low SES area. However, perhaps most important in reducing the influence of sociocultural models is the lack of an explanatory framework. When a health professional is faced with an individual at risk of obesity due to lack of exercise and poor diet, the approach to intervention is easily apparent (although not necessarily effective). In contrast, an individual at risk of obesity due to poverty and low education poses more challenges. How can intervention proceed? Without knowing how and why SES and level of education modify obesity risk, it is not possible to intervene to alter an individual's risk. There is a chasm between sociocultural and individualistic models of health, both in their methods and in the absence of a specified mechanism of action.

However, the sociocultural approach to health is not irreconcilable with the biomedical approach to health. It is here that the value of a social-psychological analysis becomes apparent. Social psychology in general, and the social identity approach in particular, specifies the process by which individuals represent and internalise features of the social environment (Turner & Oakes, 1997). By providing such a model, social psychology articulates a mechanism through which sociocultural variables might shape individual behaviours. For example, a social psychological model of obesity might posit that the norms and values among low SES or less educated communities are more likely to endorse behaviours known to increase obesity risk, such as high saturated fat intake. To the extent that an individual values the group, he or she is likely to conform to such

behavioural expectations and consequently display an increased risk of obesity. Models of obesity very similar to this have been suggested by several social identity researchers (e.g., Guendelman, Cheryan, & Monin, 2011; Oyserman, Fryberg, & Yoder, 2007) and will be outlined in the next chapter. Once such models are articulated, the sociocultural research has more utility and *can* be used to inform health interventions. Such models also provide a new layer of understanding to the individual-level analysis. For instance, in the obesity example described above, a high-fat diet is described as an individual risk factor. However, eating high fat foods may also be a defining and valued feature of an individual's social network (e.g. part of what it means to be a "tradie"). In this context, eating unhealthily can be understood as more than simply a lack of individual self-control. When social influence is conceptualised as tangible and meaningful, the behaviours that result from it are similarly given meaning and context.

Overall, it is apparent that a key element missing from current models of disordered eating is a specification of the interplay between group-level and individual-level factors. In this thesis, social-psychological theory will be utilised to elucidate the mechanisms through which individuals' behaviours and health can be impacted by social groups. In other words, my goal is to investigate the social factors influencing disordered eating using a theoretical perspective and experimental scientific methodology informed by social-psychological research. A better theoretical understanding of these processes will lead to enhanced predictive power for identifying at-risk individuals on the basis of their group memberships, as well as the potential for more targeted prevention and more effective treatment for disordered eating. The following chapter outlines this theoretical approach and provides examples of its application within the health domain.

## CHAPTER THREE

### THE SOCIAL IDENTITY APPROACH TO SOCIAL INFLUENCE

#### The Nature of Social Influence

Social influence has been a central topic of investigation for social psychologists throughout the history of the field (Petty & Cacioppo, 1981). The success of social psychological models of influence is demonstrated by their widespread adoption in fields such as advertising (Arnett, German, & Shelby, 2003), recruitment (Haslam, Powell, & Turner, 2000), leadership training (Haslam, Reicher, & Platow, 2011) and civil defence (Asmore, Jussim, & Wilder, 2001). Social influence is a very broad area, encompassing research as diverse as persuasion, conformity, group polarisation, power and leadership – indeed, the majority of social-psychological research informs our understanding of social influence to some degree. To contain the breadth of this analysis, the focus here will be specifically on research that speaks to the prediction of individual behavioural outcomes from group-processes – most of which can be described as persuasion and conformity. In this first section, key empirical findings from seminal studies in the social-psychological literature are briefly reviewed, in order to address two misconceptions originating in early social-psychological research and persisting in layperson understandings of social influence. The first is that social influence is morally bankrupt, and the second is that social influence often causes behaviour change (conformity) without actual persuasion, due to social pressure to fit in, or be accepted.

From the inception of social psychology, models of social influence emphasised the profound power that groups hold to overwhelm individual rationality and morality. Social psychology prospered in the post-war climate of the mid-twentieth century, driven particularly by the question of how social influence might cause (and *had*



caused) individuals to perpetrate terrible and immoral actions (Gergen, 1973). The findings of several seminal studies served to cement the idea that the power of social influence over individual behaviour was almost limitless. For instance, Milgram's research on the power of authority found that one-third of individuals will administer what they believe to be lethal shocks to another person under the direction of an authoritative scientist (Milgram, 1963). Haney, Banks and Zimbardo (1973) described the unrelenting power of social roles after they found that psychologically-healthy students given the role of "prison guard" behaved in domineering, autocratic, and even cruel ways towards their "prisoners".

Another early finding that reinforced the idea of influence as extremely powerful came from the Asch line studies (Asch, 1955). In these experiments, participants were required to judge which of two lines was the same length as a target line, on a task that was (perceptually speaking) extremely simple and where a success rate of 100% would be expected from participants with no major visual impairment. However, a number of confederates (that is, actors pretending to be other participants) first unanimously and publically selected an incorrect choice. In these experiments, it was found that participants responded incorrectly (in order to conform to the confederates' choice) on 37% of experimental trials. The dominant interpretation of this work has been that social pressure is extremely powerful, and can lead people to suppress their (accurate) individual perception.

In an early attempt to explain these findings theoretically, the dual-process model of influence (Deutsch & Gerard, 1955) proposed that there were two key reasons why an individual might be influenced by others. The first reason was informational influence – that is, other individuals hold relevant information about objective reality that the perceiver alone does not. The second reason was normative influence – the desire to be socially desirable and valued by others might lead individuals to behave in



ways that they believe are endorsed by the social group (e.g., in the Asch line studies). In other words, it was argued that conformity to social norms followed either from an individual's need to obtain information *or* to affiliate with the group. In this context, social influence is seen as serving individual needs (e.g., "to be liked" or "to be right"; Deutsch & Gerard, 1955), rather than being the result of attitude change or the incorporation of group norms into an individual's long-term behavioural repertoire. However, Asch's own observations suggest that the conformity his participants represented more than public compliance. The unexpected difference of opinion between participants and those with whom they expected to agree caused significant *uncertainty*, undermining participants' confidence in the accuracy of their own perception (Asch, 1955).

Other research supports the idea that social influence is powerful enough to shape individual perception. Sherif (1936) made use of a perceptual phenomenon known as the autokinetic effect in order to study social influence processes. When participants observe a stationary pinpoint of light in a darkened room, the light appears to be moving. In these experiments, participants were asked to estimate the distance that the light was moving. Sherif found that participants will consensualise to a group norm when other participants are present (Sherif, 1936). Furthermore, if participants in the original group are gradually replaced with naïve participants, the group norm will continue to influence estimates of movement (Jacobs & Campbell, 1961). This research provided strong evidence that social influence impacts not only overt behaviour, but can also shape perceptions of physical reality.

In an attempt to account for these findings theoretically, and in contrast to the dual-process model, Doise, Mugny and Perez (1998) proposed a socio-cognitive conflict model of social influence. This posits that, rather than fact-based information being separate from (or even opposed to) socially-based information, knowledge is

inherently socially constructed and, therefore, social influence can actually enhance understanding of physical reality. This model is based particularly upon studies with young children with limited spatial representation skills, who will state that two identical objects differ in size merely because one is further away (thus appearing smaller, Doise, Mugny, & Perret-Clermont, 1975). In one condition, children viewed a visual array from two perspectives, providing sufficient information to create cognitive conflict (i.e., providing evidence to the child that his or her current model of spatial representation was inaccurate). In the other condition, two children participated together, with each child only able to see one of the two perspectives. In this condition, therefore, cognitive conflict only arose through discussion between the children, and was inherently social in nature. This study (and others similar, e.g., Bearison, Magzamen, & Filardo, 1986; Mugny & Doise, 1978) found that children achieved greater gains in their spatial representation skills when they experienced socio-cognitive conflict. That is, the children were *objectively* more accurate in their perception of relative object size as a result of mutual social influence. This suggests that the informational-normative distinction may be less important than previously stated.

In almost all of the studies reviewed thus far, social influence was conceptualised primarily as a dangerous force with the capacity to overwhelm an individual's rationality and moral compass. More recently, however, researchers have begun to explore how social influence may also shape pro-social or moral behaviour. Research has demonstrated that group norms can influence individuals to help bystanders (Levine, Cassidy, Brazier, & Reicher, 2002), reduce cheating behaviour (McCabe, Trevino, & Butterfield, 2001), increase donations to charity (Platow et al., 1999) and improve academic performance (Shih, Pittinsky, & Ambady, 1999; Zimmerman, 2003). Such findings necessitate a model that frames social influence and the group processes from which it emerges as *morally neutral*. This is in stark contrast

to traditional explanations, in which social influence is assumed to be irrational, chaotic, or morally bankrupt (Reicher, 1991).

The social psychological literature, therefore, suggests that social influence is profound in its capacity to shape not only behaviour, but also attitudes and even perception. That is, most social influence entails *psychological change*, not purely behavioural conformity. Furthermore, although social influence was originally studied as a negative distortion of individual morality, more recent evidence suggests that social influence is best conceptualised as morally neutral – a legitimate strategy through which individuals gather information about the social and physical worlds in which they live. To summarise this section then, social influence can be defined as the process through which individuals make use of social information in order to construct meaningful understandings of the world. One modern theory of social influence that is consistent with this conceptualisation of influence as meaning-making is explicated within the social identity approach. This model also goes a step further in explaining why and how social influence occurs.

### **The Development of a Social Identity Approach**

The social identity approach was not developed purely as a theory of social influence, but rather to account for a seminal experimental result. This experiment arose out of efforts to explain the basis of group membership and how it motivates individuals to engage in group-based behaviours. In particular, behaviours such as in-group favouritism, helping and conformity appeared to serve the group at the expense of the individual, and were thus historically seen to be “irrational” and in need of explanation (Olson, 1965). Prior to the development of the social identity approach, the dominant explanation for group-based behaviours was interdependence theory (Kelley & Thibaut, 1978). Remaining influential today, particularly in lay-person thinking and economic ideology (Stanne, Johnson, & Johnson, 1999), this approach theorised that individuals

only engage in group-based behaviours when they perceive their own personal outcomes to be interdependent with those of fellow group members (*perceived outcome interdependence*). That is, to the extent that the group's norms are upheld and goals met, individual goals are also more likely to be met. Personal outcomes are likely to be improved in the long-term to the extent that the actions of a number of individuals can be coordinated and cooperative. It was therefore asserted that the fundamental quality that defined psychological group membership was perceived outcome interdependence (Kelley & Thibaut, 1978).

However, an empirical challenge to interdependence theory come with the development of the minimal-group paradigm (Diehl, 1990). In experiments using this paradigm, individuals are categorised on the basis of otherwise meaningless, random and/or arbitrary criteria. They do not know the individual identity of their fellow group members and are given no opportunity to interact in their groups. Participants are then asked to allocate resources to in-group and out-group members. It is made explicit that their decisions are anonymous and will not impact on their own personal outcomes. In a finding that has now been replicated many times, participants in these experiments display in-group favouritism in their allocations, in preference to other strategies such as fairness (which was also common) or total overall benefit (Tajfel, Billig, Bundy, & Flament, 1971). When first established by Tajfel (1970), this finding was profound as it occurred despite the absence of all the aspects of groups that were thought to be important – interpersonal attraction, cooperation, personal meaning, interdependence, etc. More recent research has confirmed that interdependence is unnecessary for the emergence of group phenomena (Turner & Bourhis, 1996), and in fact minimal categorisation can lead to perceived interdependence (Platow, Grace, & Smithson, 2012). Categorisation *alone* can elicit group processes. A new theory was needed that accounted for this effect.

Social identity theory (SIT) was developed in light of the minimal categorisation effects. It posited that individuals possess both personal identities and social identities (Tajfel & Turner, 1986). Departing from interdependence theory, SIT stated that when individuals identify with a social category, they will act in the interest of the group, and not necessarily in their individual interest. Furthermore, it was asserted that psychological group membership is necessary and sufficient to produce group processes (Turner & Oakes, 1997). Self-categorisation theory (SCT) expanded these ideas, articulating the psychological process through which an identity becomes contextually meaningful for an individual (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). The phrase *social identity approach* will be used in this thesis to refer to theoretical and empirical work derived from both Social Identity Theory (SIT; Tajfel, et al., 1971) and Self-Categorisation Theory (SCT; Turner, et al., 1987).

### **Central Tenets of the Social Identity Approach**

The social identity approach not only accounts for a range of social phenomena, but is also a cognitive and motivational theory of the self (Turner & Oakes, 1997). A core principle is that the self-system is not, contrary to personality-based models of self, an invariant structure specifying the ways in which an individual differs from other individuals. Rather, the self-concept comprises many different components in the form of self-categorisations which become psychologically meaningful in a way that is situation-specific (Turner, et al., 1987). This section reviews the theory underlying the social identity approach, both generally and in relation to social influence, before arriving at two propositions regarding the moderators of the social influence process derived directly from the theory.

One important theoretical development that is central to the social identity approach is the distinction between a sociological group and a psychological group (Turner, 1999). In particular, social psychologists recognised that objective membership

of a social category is not the same as the psychological internalisation of that group membership. For example, a woman may be of a height and weight that she is medically classified as obese (sociological group membership). However, it does not follow that she necessarily perceives herself as an obese person (psychological group membership). To the extent that social categories have norms for behaviour (e.g. regarding appropriate food intake), we would expect that only individuals who *see themselves* as members of the social category would be influenced by these norms. Therefore, the most important dimension of group membership is not the objective similarity between two individuals on externally defined criteria, but rather the extent to which the shared group membership is salient (i.e., currently psychologically prominent) to the individual and perceived as psychologically relevant (Turner & Oakes, 1997). This model of group membership emphasises the psychological process of group membership, arguing that individuals internalise and represent social categories and that this is a key mechanism through which group processes emerge.

The concepts of psychological group membership and self-categorisation are powerful, as they allow the social identity approach to account for both features of social influence as elucidated above: a) its profundity in influencing not only behaviour but also perception, and b) social influence as morally neutral. The social identity approach is not only a model of social processes, but also a model of *self*; it speaks to how social information shapes self-definition and becomes self-relevant. Thus, social norms become more than just a guide for appropriate behaviour, but one of the inputs of the very nature of the self and the world. Via the process of psychological group membership, perception and cognition become fundamentally social phenomena, shaped by an individual's experiences, expectations, beliefs and values – many of which are in themselves the outcome of group processes. This perspective argues, therefore, that it is impossible for an individual to access physical objective reality without the

social context (in which they are embedded) shaping this experience (Turner & Oakes, 1997). Perceivers are construed as actively constructing their worlds based on information from valued, self-relevant sources. Put simply, social influence is the collaborative process of individuals looking to groups for guidance on who “we” are and what “we” do (Cruwys, Platow, Smithson, Mavor & Grace, under review).

The principle of psychological group membership also enables the social identity approach to conceptualise social influence (and all group processes) as morally neutral. In part, this is because the social identity approach distinguishes between self-categorisations in terms of their *level of abstraction*. Most inclusively, a category may include all of humanity. At the other end of the spectrum, a category may include only the individual, thereby corresponding to more traditional models of self. In between these two levels, however, are innumerable *social categories*, and to the extent that individuals define themselves and others in terms of these social categories, group processes (such as social influence) are expected to occur. Importantly, and in contrast to the majority of existing social-psychological theories, the social identity approach *does not* presuppose that one level of abstraction in terms of self-definition (e.g., as a unique individual) is superior to others. Instead, all levels and forms of self-categorisation are considered equally psychologically valid. Furthermore, the theory specifies the psychological preconditions that enable the emergence of different levels of self-categorisation (outlined below). It follows, then, that social influence is not an irrational or flawed means of perceiving reality, but instead a legitimate and contextually-appropriate means of making sense of one’s social world.

In the next two sections, two primary variables are outlined that the social identity approach proposes as moderators of the social influence process. Each is derived from the theoretical framework, leading to a *proposition* – i.e., an abstract



hypothesis that will guide the development of specific research hypotheses later in the thesis. Existing evidence for each proposition is then reviewed.

### Shared Group Membership

The categorisation process described by the social identity approach involves the perceptual division of social stimuli into *self* vs. *other* (Turner, et al., 1987). A core assumption of the social identity approach is that of positive distinctiveness. This refers to the universal motivation to perceive oneself as *different from* and *better than* similar others. Although this concept is widely accepted at an individual level (usually in the form of self-esteem, e.g., Rosenberg, 1965), the social identity approach states that the drive for positive distinctiveness also motivates many social phenomena. Specifically, when an individual identifies with a social category, he or she is motivated to perceive the *category* as positively distinct from other contextually-relevant categories (Turner, et al., 1987). Thus, group processes, such as in-group favouritism, emerge as one strategy to fulfil the psychological motive to positively distinguish one's group from others.

One outcome of the drive for positive distinctiveness is that similarities between members of that group (including the self) are perceptually accentuated, while the perceived differences between group members are perceptually reduced (Tajfel & Wilkes, 1963; Turner & Oakes, 1989). This process results in *depersonalisation*, in which individuals perceive themselves to be interchangeable with other in-group members on dimensions which are relevant to the group membership (Turner, et al., 1987). Depersonalisation results in a convergence and consensualisation among in-group members on who "we" are and what "we" do (van Rijswijk, Haslam, & Ellemers, 2006). It is this process of depersonalisation that accounts for observed social phenomena, such as social influence. Therefore, unlike more traditional accounts of social influence, the social identity approach does not state that individual desires and



goals are distorted or overwhelmed by social influence. Rather, individuals are said to define themselves in terms of important social categories (e.g. “we women”, “we university students”) and it is this social identification that *enables* social influence. Furthermore, and as will be discussed below, the conceptualisation of self is construed as fluid and responsive to contextual changes, and individuals actively engage with the stimulus environment to create a meaningful construction of the world and their place in it.

It therefore follows that the *source* of an influence attempt (be it via persuasion or social norms) is an important determinant of its success. Features of the source are not considered in isolation (e.g. expertise, attractiveness), but rather in reference to features of the perceiver and the relationship between the two parties. Following from the principles of depersonalisation, it follows that when an individual perceives him or herself in terms of a particular identity, it is only other individuals who share that identity whose attitudes and behaviours are influential (Turner, 1991). For example, a female doctor is less likely to be influenced by her male colleague’s choice of clothing if she self-categorises as a woman (for whom men’s clothing is irrelevant) than if she self-categorises as a doctor (where they share a group membership). It is therefore expected that influence will be minimal if the source is not perceived to share a relevant group membership – an out-group member is simply not considered a valid source of information about what “we” do and who “we” are. Out-group norms, beliefs and behaviours are only relevant to defining what the in-group is *not*, and therefore may in fact prompt counter-conformity and divergence. Thus:

*Proposition One: The perception of a shared psychological group membership with an influence source will enhance social influence, relative to when the source is perceived to be an out-group member.*

Empirical research has borne out this proposition. In domains as diverse as facial mimicry (Yabar, Johnston, Miles, & Peace, 2006), humour (Platow et al., 2005), smoking (Schofield, Pattison, Hill, & Borland, 2001) and pain perception (Platow et al., 2007), influence has been demonstrated to be enhanced when the perceiver and the source share a psychological group membership. To return to the autokinetic effect, Abrams et al. (1990) demonstrated that participants only consensualise to a shared norm when they perceive a shared group membership with fellow participants. Similarly, a meta-analysis found that in replications of the Asch line studies, confederates who were perceived as in-group members led to greater conformity (Bond & Smith, 1996). In a further example, Mackie, Worth and Asuncion (1990) found that college students' were more persuaded by a strong (compared to a weak) message when delivered by an in-group member (a fellow University of California, Santa Barbara student). When the source was out-group (from another university), participants were not persuaded by either the strong and weak messages. This suggests that individuals are not indiscriminately more favourable in evaluating influence attempts by in-group members, but rather attend more closely to the content of their messages. That is, messages from in-group members are perceived as *self-relevant*, and this prompts people to process the influence attempt more thoroughly. Therefore, evidence in a wide variety of domains has demonstrated that shared group membership enhances social influence.

Further to Proposition 1, a corollary can be explicated that warrants specific attention in the health domain. The dominant framework in health research, including among clinical psychologists, is a biomedical model of pathology (St Claire, Watkins, & Billingham, 1996). It is assumed within this model that individuals who present with pathology *differ* in some way from the general population, thus making them vulnerable to the disease (or disease-like) process. Meta-theoretically, this differs markedly from

the social identity approach to conceptualising health phenomena. In particular, the psychological processes described in the social identity model are assumed to be fundamental to all human perception. Differences between individuals may arise for a variety of reasons relating to differences in self-categorisations, norms, and other contextual features. However, the social identity approach rejects the notion of a stable, trait-like difference in the *process* of categorisation. Individual pathology is not taken as evidence that qualitative psychological differences exist between those classified as disordered and other persons. Therefore:

*Corollary 1: Proposition 1 will be valid among clinical samples as well as typical individuals. That is, effective social influence will be dependent upon a target's perception of shared group membership with the source.*

### **Context-Dependence of Identity**

One feature of the social identity approach that distinguishes it from other models of self is that it posits that identity is fluid (Onorato & Turner, 2004). Individuals have many group memberships (e.g. "Australian", "woman", "university student"). Which category shapes self-definition and hence behaviour at any given time (i.e., which category is *salient*) is determined by its fit in the current situation (Oakes, Turner, & Haslam, 1991). That is, categorisation of self (and others) is responsive to context and is constructed dynamically in-the-moment in order to derive meaning from the perceptual environment. Of course, a risk of any approach that elevates context to the status of a predictive variable is that it may be vague, unspecified and hence lack falsifiability. The social identity approach, however, provides a precise specification of how categorisation (of both the self and others) will be shaped by context. SCT specifies three factors that determine the way in which a target person will be categorised. These are comparative fit, normative fit and perceiver readiness (Oakes, et al., 1991), each of which will be considered in turn.

Comparative fit is determined by the meta-contrast principle, which states that a collection of stimuli are more likely to be categorised as an entity when those stimuli are perceived to be more similar to one another than to other stimuli (McGarty, 2002). The extent to which any given individual 'fits' into a category (i.e., his or her *prototypicality*) can be determined mathematically using the meta-contrast ratio (MCR). This is the ratio of the average similarity of the individual to out-group members to the average similarity of the individual to in-group members. The higher an individual's MCR, the more prototypical he or she is of the group, and the more likely he or she is to be categorised as a group member (Haslam & Turner, 1992). Evidence has accumulated that comparative fit guides categorisation, in the perception of both social and non-social stimuli (Oakes, et al., 1991; van Knippenberg, van Twuyver, & Pepels, 1994). For instance, in one study, participants were asked to categorise target persons. Participants were more likely to categorise targets on the basis of gender when all male targets shared one opinion on a (gender irrelevant) issue, while all female targets held an opposing opinion (Oakes, et al., 1991). When opinions were randomly distributed across the target persons, gender-based categorisation was much less likely.

However, considerations of similarity alone are insufficient to explain the categorisation process. The similarity of two individuals is not only dependent on context, but also upon the dimensions selected for comparison (Medin, 1989). In a given social situation, there are innumerable characteristics on which it is possible to compare individuals. For example, two women might both be young and Caucasian, but these similarities may be irrelevant if the salient identity is weight. Medin (1989) argues that which dimension is chosen for comparison depends upon the *theory* on which a categorisation is based.

In SCT, the theories that guide a perceiver's categorisation is referred to as normative fit. A categorisation has normative fit to the extent that it conforms to the

perceiver's knowledge-based expectations about the categories (Platow, Grace, Wilson, Burton, & Wilson, 2008). In other words, the outcome of the categorisation process is constrained by an individual's understanding of the group in question. A perceiver is more likely to categorise a group of men as Australian if they are drinking beer and eating meat pies than if they are drinking tea and eating fruit mince pies. Empirical work has supported the notion that normative fit plays an important role in determining categorisation processes. For instance, in a study by van Knippenberg et al. (1994), gender-based categorisation was more likely when all the male targets expressed disagreement with "positive discrimination in favour of women" and all female targets supported this position, compared to the converse. In other words, not only do groups have to differ from one another – they have to differ in a way that is meaningful to the perceiver.

The final component that shapes identity salience is perceiver readiness. This refers to the *accessibility* of a particular categorisation; the degree to which an individual's background, personal preferences and previous categorisation experiences shapes his or her readiness to categorise in a particular way (Blanz, 1999). The main implication is that, given a particular contextual situation, perceivers differ in the degree to which they are likely to categorise in any particular way. For instance, a woman with a history of anorexia nervosa may be more attentive to weight as a defining characteristic of others and, therefore, more likely to categorise herself and others on the dimension of weight. A key component of perceiver readiness is social identification, discussed in detail below.

The social identity approach describes two related processes describing the degree to which an identity is psychologically represented by an individual – *strength* of identity and *salience* of identity. Although these constructs are often conflated (McGarty, 2001; Stryker & Serpe, 1994), they refer to conceptually distinct

psychological processes. Strength of identity, also called social identification, refers to the degree to which a person perceives a particular social category as self-defining (Doosje, Spears, & Ellemers, 2002). For example, although two women may both hold a female social identity, they may differ markedly in the extent to which they see gender as a legitimate, meaningful and valued self-definition. Although theoretical discussion continues regarding the constructs embodied by the notion of social identification (Schmid, Hewstone, & Ramiah, 2011), an influential paper by Leach et al. (2008) argued that it encompasses two core dimensions. These are self-definition (including in-group homogeneity and individual self-stereotyping) and self-investment (solidarity, satisfaction, and centrality). Put another way, if a woman *defines* herself in terms of her gender and being a woman is *important* to her, she can be described as high in social identification as a woman.

By contrast, identity salience is the outcome of the dynamic nature of self-categorisation. As discussed above, categorical perception is fluid and responsive to contextual information. The extent to which individuals define themselves and others in terms of a particular in-group or out-group is expected to shift as a function of comparative context, normative fit and perceiver readiness. For example, although a woman may strongly value her female identity, there will be some contexts in which it will be more psychologically active (e.g., when engaged in a debate with male friends about childbirth) and other contexts in which it will be less so (e.g. engaged in debate with female friends about money). Theoretically, it is only when an identity is salient (i.e., currently psychologically prominent), that it shapes self-definition and consequently behaviour.

The confusion between identity strength and salience arises in part because of the difficulty in obtaining distinct measurements of them. This is due to the fact that merely asking questions about a particular social identity, or framing questions such that

they are relevant to that identity, is sufficient to make that identity contextually salient (Shih, et al., 1999). In fact, the association between identification strength and salience is so strong that high average ratings on a social identification scale are widely used as an indicator that a particular identity has successfully been made salient (McGarty, 1999; Turner, 1999). However, only when a social identity is salient *and* the perceiver has strong social identification do we expect group processes to emerge. This issue is explored in more detail in Chapter 8, where it is particularly relevant empirically.

Thus far, this section has reviewed the contextual factors that impact on the self-categorisation process. Why then, is it important to know how an individual self-categorises him or herself? The importance of identity arises because self-categorisation as a group member *confers more than just a label*. For example, the social category “women” contains substantial normative content regarding everything from clothing to emotional expression to career aspirations. By defining oneself in terms of a category, its content becomes self-relevant and thus begins to shape behaviour. Knowing which identity is salient for an individual brings substantial predictive utility: identity guides perception of self and others, which in turn guides behaviour. However, the importance of such “content” was acknowledged long before the development of the social identity approach, in research on *social norms* (Sherif, 1936). It has long been observed that the values and attitudes of valued group memberships come to shape the values and attitudes of individual group members. Subsequently, however, the concept of norms lost favour among researchers for several decades as it was seen to be circular: for example, “we eat unhealthily because that is what we do”. With the development of the social identity approach, it was possible to extend the concept of norms beyond mere redescription. The concept of self-categorisation provides the mechanism through which social norms shape individual behaviour (as the content of contextually-salient identities). Specifically, to the extent that a particular social category is salient for an



individual, the beliefs, values and behaviours that define the social category become *self-defining*. Therefore, behaviours of individuals should resemble the behavioural tendencies of currently salient groups (Abrams, et al., 1990).

The full implications of the social identity approach go one step further, however. As briefly outlined above, categorisation of the self may occur at a variety of levels, which differ in terms of their level of abstraction and inclusiveness (i.e., myself as a unique person, myself as a woman, myself as a human [Turner, et al., 1987]). Personal identities – those which categorise the self as separate and different from other persons – are theoretically equivalent to social identities – those which categorise the individual as separate and different from other groups (Turner & Onorato, 1999). Therefore, just as norms are conceptualised as the *content* of a social identity, personality might analogously be said to be the *content* of a personal identity. That is, while norms refer to the usual attitudes and behaviours of a social group, personality refers to the usual attitudes and behaviours of an individual. It follows that the manifest actions of a person will depend upon his or her currently salient identity (e.g., personal vs. social) and hence the current contextual environment. This proposition truly lies at the intersection of the sociocultural and individual explanations for behaviour, in proposing that predictors at both levels of analysis may be important at different times. Thus:

*Proposition Two: Behaviour will be best predicted by individual characteristics when personal identity is salient, and by group-level characteristics when social identity is salient.*

Significant evidence exists for this proposition in a variety of topic areas. Social norms (a group-level characteristic) are a stronger predictor of behaviour when group identification is high, as demonstrated with behaviours as diverse as recycling (Terry, Hogg, & White, 1999), contraceptive use (Fekadu & Kraft, 2002), and use of sun protection (Terry & Hogg, 1996). A much smaller number of studies has assessed



whether the converse is true: that individual attitudes or beliefs will more strongly predict behaviour when personal (vs. social) identities are salient. However, several studies in non-health domains have been suggestive of such a relationship. For instance, Reynolds, Turner, Haslam & Ryan (2001) found that right-wing authoritarianism (a personality measure) interacted with strength of national identity in predicting racism, such that only when national identification was low was right-wing authoritarianism significantly associated with racism. Similarly, personal preferences for particular leadership qualities were less important in predicting endorsement of leaders when group identity was highly salient (Hogg, Hains, & Mason, 1998; Hogg & Hardie, 1991; Hogg & Martin, 2003)

It might be argued that, in the realm of disordered eating behaviour, the strong consistency in individual behaviours over time means that contextual effects must be minimal or absent. However, it is the case that, for most individuals, the social context in which they live their lives remains relatively stable over time (Reynolds et al., 2010). Unlike many individual-difference characteristics, however, social context is amenable to change. It is therefore crucial for intervention efforts that the potential context-dependence of disordered eating predictors be fully explored.

### **Strengths of a Social Identity Approach to Disordered Eating**

How is the social identity approach able to address the central concern of this thesis: why has there been a societal increase in disordered eating? There are at least four theoretical contributions that will be explored below. These are 1) its conceptualisation of pathology, 2) the elevation of structural and process variables to causal roles, 3) the provision of a conceptual link between social phenomena and individual behaviour, and 4) a parsimonious explanation for both differences and similarities between individuals in their level of pathology. Each of these contributions will be considered in turn.

Firstly, the social identity approach is steeped in a social constructivist tradition (Turner & Oakes, 1997) that, it will be argued, is not compatible with a biomedical model of disordered eating. In reflecting upon the theory reviewed in this chapter, the reader will recall that the social identity approach does not make a distinction between “social information” and facts – all understandings of the world are subjectively constructed with reference to one’s experiences and group memberships. Taken one step further, if the self is both fluid and defined in terms of one’s social relationships, then *all* situations and experiences are social in nature. Perception is shaped by a person’s previous categorisation experiences as well as his or her current ones. To return to eating behaviour, the use of descriptors such as “pathology” and “disorder” imply an objective standard of correct behaviour that does not take into account the vastly differing (and equally psychologically valid) perspectives that arise from the social construction of knowledge. However, as will be obvious from the review in Chapter 2, this thesis does not take a social constructivist stance to the degree of disavowing any value-judgement of eating behaviour. Rather, here the assumption is made that certain behaviours can be defined as maladaptive in that they ultimately lead to outcomes that the person in question perceives to be undesirable (e.g., weight gain, social isolation or psychological distress). In the case of disordered eating behaviours, the consequences for physical and mental health are profound.

Therefore, although a radical social constructivist model is rejected, a strength of the social identity approach is in situating the causes of disordered behaviour beyond the individual’s personality. That is, if there is a pathology at work, it may be embedded in broader systems such as the social group or the environment, rather than the individual (see also, Boyden, 2004). This is a useful contribution to the disordered eating literature, as it refocuses research efforts to look beyond the individual level of analysis to identify both aetiological factors and leverage points for intervention.

Secondly, in both the sociocultural and individualistic research on eating behaviour reviewed in the previous chapter, there is a tendency for variables which are similar in *content* to disordered eating to be treated as causally important in the development of disordered eating behaviour. For example, the thin ideal for women in Westernised countries and the personality trait of perfectionism are both similar in *content* to the characteristics of anorexia nervosa. It is perhaps therefore no surprise to find an association between such constructs and disordered eating. By contrast, the link between, for example, perceiving oneself as a woman and engaging in disordered eating behaviours, is less easily derived from the superficial characteristics of the behaviours themselves. However, research informed by the social identity approach has repeatedly demonstrated the value of structural variables (e.g., identity strength, status relations between groups, or the permeability of group boundaries) in conceptualising and predicting group-processes (Ellemers, van Knippenberg, & Wilke, 1990; Haslam, Oakes, Reynolds, & Turner, 1999; Jetten, Postmes, & McAuliffe, 2002). Individuals may engage in behaviours that are more or less healthy for reasons that are independent of their attitudes and goals regarding health *per se* (Oyserman, et al., 2007; Tarrant & Butler, 2011). Behaviours may signal identity, serving functions such as bolstering key identities, contributing to a meaningful understanding of the social world and building a shared identity with in-group members. For example, when a woman's identity as a ballet dancer is salient, she may engage in dieting not because she personally values thinness or health, but rather because she seeks to better embody *what it means to be* a ballet dancer. Such motivations, although not as obviously health-related, may be central to the aetiology of disordered eating behaviour if they lead to a pattern of unhealthy behaviour. Therefore, the suggestion of such structural variables for investigation is another important contribution of the social identity approach.

The third theoretical contribution of the social identity approach to the study of disordered eating behaviour is its specification of a mechanism for the impact of social phenomena on individual behaviour. The social identity approach explicates the psychological process of social identification, the conceptual link through which group-based phenomena *become* self-relevant. Therefore, the theory provides not only a means for measuring the degree to which the behaviours of individuals are likely to be influenced by their group memberships (i.e., social identification scales) but also a means for predicting and/or manipulating salient identities for individuals (via perceiver readiness, comparative fit and normative fit). Conceptually, this suggests the possibility that the social identity approach may be helpful not only in developing a more parsimonious model of the *development* of disordered eating, but also has the potential to contribute to more effective disordered eating treatments, which depend on the identification of malleable leverage points of intervention.

Finally, a strength of the social identity approach is its capacity to incorporate previous findings into a single parsimonious model. Unlike many sociocultural models, a social identity approach does predict individual deviations from the population (due to differences in identity strength and salience), individual changes over time (due to both self-stereotyping (Haslam et al., 1999) and also a change in dominant self-categorisations) *and* commonalities across the population (due to shared group norms and consensualisation). This is a model that accounts for interactions between different levels of analysis (for instance, between personal attitudes and salient identity, as per Proposition 2) rather than oversimplifying the analysis to one of either social variables or individual variables, as in much of the research reviewed in Chapter 2. Thus the social identity approach has the potential to reduce the complexity of the literature on eating behaviour without suggesting a simplistic model of human psychology.

### Use of the Social Identity Approach in the Health Domain

Traditionally, the social identity approach to social influence has been applied in domains that are more uncontroversially “social” in nature. For example, racism and prejudice, leadership, justice, helping and trust have all received detailed treatment by social identity theorists (Brown, 2000). However, in the last decade a significant number of social identity theorists have turned their attention to understanding the social dimensions of health and wellbeing. In this section, several research programs are reviewed which have been successful in predicting and modifying health behaviours using a social identity model, in order to demonstrate that the social identity approach has utility in this domain. Also included is the small body of work that has previously brought a social identity analysis to eating behaviour in particular.

One vein of research that suggests the value of a social identity approach to health issues has been an expansion of the Theory of Planned Behaviour. This is a dominant model in the health psychology literature that is widely used to predict health behaviours (Ajzen, 1991; Armitage & Conner, 2001). Specifically, this model states that there are three major psychological variables that predict behaviour - behavioural attitude (e.g., the individual’s personal belief about dieting), subjective norms (e.g., the individual’s perception of others’ attitudes to dieting) and perceived behavioural control (e.g., whether the individual thinks he or she has control over the way he or she eats). Reviews of the literature have suggested that the subjective norms component has the weakest predictive relationship with behaviour (Armitage & Conner, 2001). However, social identity researchers have argued that subjective norms are not predicting behaviour well because they are measured poorly (Terry, et al., 1999). Typically, subjective norms are measured using several items asking about the attitudes of “people important to you”. A social identity approach would argue that norms should only predict individual behaviour to the extent that they are held by a *specific social group*

that is self-defining for the individual (that is, he or she identifies highly with the group, as per Proposition 2). Researchers who have included the interaction between social identification strength and in-group-specific norms have improved the predictive power of the Theory of Planned Behaviour. For example, Louis, Davis, Smith and Terry (2007) predicted unhealthy eating behaviours among a student sample using variables from the Theory of Planned Behaviour. The model was improved if perceived norms of the student group, identification with the student group and their interaction were included in the model. This approach has been validated for a wide range of health behaviours, including exercise (Terry & Hogg, 1996) and binge-drinking (Johnston & White, 2003), as well as eating (Åstrosn & Rise, 2001; Smith et al., 2008).

A major concept in the health psychology literature is social support: the availability, or perceived availability, of others to provide material and/or emotional support in times of need. Social support has rightly been emphasised in the research agenda, as its positive relationship with wellbeing is profound and far-reaching (Uchino, Cacioppo, & Kiecolt-Glaser, 1996). For instance, good social support is associated with better mental health (Kendler, Myers, & Prescott, 2005), reduced pain perception (Eisenberger & Lieberman, 2005), more effective immune functioning (Uchino, et al., 1996), improved cancer recovery (Kroenke, Kubzansky, Schernhammer, Holmes, & Kawachi, 2006) and even longer life expectancy (Rosengren, Orth-Gomér, Wedel, & Wilhelmsen, 1993). A dominant model conceptualises social support as a *buffer* that lessens the physiological impact of stressors (Cohen & Wills, 1985). However, exactly what constitutes social support remains poorly specified. Social support has also been studied under guises such as social capital, social connectivity, belongingness, social integration and social networks (Harpham, Grant, & Thomas, 2002). A recent review of the relationship between social support and mortality (Holt-Lunstad, Smith, & Layton, 2010) included dozens of different measures of social relationships, ranging from

marital status to loneliness scales to social network density. Despite this diversity in definitions and measurement, the review found a 50% increased odds of survival as a function of social relationships – on par with risk factors such as smoking and alcohol consumption. However, despite the evident power of this construct in determining health outcomes, debate continues over the mechanisms involved and how social support should be defined.

Recently, however, a social identity analysis of social support has brought some clarity to the literature. Specifically, this analysis emphasises the importance of shared salient social identity in a) increasing the level of social support given and received and b) increasing the likelihood that supportive actions will be *perceived* as supportive (Haslam, Reicher, & Levine, 2011). Experimental evidence has confirmed this model, showing that individuals are more likely to offer support to contextually defined in-group members (Levine, Prosser, Evans, & Reicher, 2005), and also that participants under stress derived more benefit from support when it is offered by in-group members (Haslam, Jetten, O'Brien, & Jacobs, 2004; Platow, et al., 2007). This analysis is also consistent with social identity analyses of social capital, which have found that the benefits of social capital are partially mediated by heightened social identification with national or community identities (Helliwell & Barrington-Leigh, 2011).

In addition to research demonstrating the value of a social identity analysis in conceptualising and predicting health behaviour, several studies have also demonstrated the potential for social identity principles to be utilised in the design and implementation of prevention and treatment programs (Jetten, Haslam, & Haslam, 2011). Such interventions have been able to show measurably improved health outcomes for individuals as a result of manipulating group process variables. For instance, in a series of studies with nursing home residents, researchers manipulated the degree of interaction with other residents in communal areas. Higher levels of group



interaction were associated with improved wellbeing on a number of measures including memory performance, number of falls and morbidity (Haslam et al., 2010; Haslam, Jetten, Haslam, & Knight, 2011). Although social identity health intervention research is in its infancy, these initial successes suggest a significant untapped opportunity for improving health outcomes.

Finally, there is also a small body of work that has addressed eating behaviour specifically from a social identity perspective. Oyserman, Fryberg and Yoder's (2007) Identity Motivation Theory of health behaviour represents the most significant attempt to conceptualise eating behaviour within a social identity framework. Specifically, these authors attempt to explain the higher risk of obesity and associated adverse health outcomes among ethnic minorities in the United States. They demonstrate that this is due to the adoption of unhealthy behaviours as identity-defining among such minorities, along with a rejection of explicitly "health-promoting" behaviours (e.g. gym membership) as white, upper-class out-group behaviours. Oyserman and colleagues (2007) argue that individuals are motivated to engage in such behaviours not because they are unhealthy, but because they desire to affiliate with their in-group.

In a similar vein, Guendelman, Cheryan and Monin (2011) have examined the utility of a social identity model in explaining the high prevalence of obesity among recent immigrants to the United States. They demonstrate that immigrants' motivation to "fit in" with American culture causes them to display behaviours that they perceive to be prototypical of that group. In this case, prototypical behaviours are likely to be those placing an individual at high risk for development of obesity (e.g., eating fast food) – which is exactly what was found in this research.

Although both these research programs provide evidence for a social identity approach to eating behaviour, their focus on the norms of particular subgroups within modern America limits the generalisability of the results. That is, these papers do not



represent a test of the basic propositions regarding the social identity analysis of social influence in the domain of disordered eating behaviour. However, two papers were located which addressed the propositions outlined above more directly. Firstly, a study conducted by Balaam and Haslam (1998) provided a test of Proposition 1, by manipulating the source of a pro-dieting or anti-dieting message to examine the moderating role of shared group membership on effective social influence. Although important conceptually in its application of the social identity approach, this experiment suffered several methodological problems, including a lack of power, and the results were only suggestive of the moderating role of source. Secondly, Tarrant and Butler (2011) have provided a partial test of Proposition 2. These authors manipulated participants' currently salient identity to determine the impact on an individual's intention to engage in a variety of health behaviours (e.g., reduced salt or alcohol intake). It was found that participants had a stronger health orientation when their British nationality was made salient than when their university student identity was made salient. This research mirrors, in some ways, the augmentation of the Theory of Planned Behaviour as outlined above, although it takes the analysis a step further by actually manipulating identity salience to show the impact this can have on behavioural intentions.

It is clear from this review that the social identity approach can be gainfully applied to the health domain, and to eating behaviour specifically. However, despite the success of such work, little or no research has attempted to apply the social identity analysis of *social influence* in particular to understand the eating phenomena outlined in Chapter 2. Just such an analysis is conducted in the next chapter, in order to make an argument for how the general propositions of the social identity approach map onto disordered eating behaviour.

Overall, this chapter has made an argument for why the social identity approach to social influence is particularly valuable in an analysis of disordered eating behaviour. The chapter began with a brief history of social influence research. Following this, the key features of the social identity perspective were outlined, along with evidence supporting these ideas. Finally, existing work analysing health behaviours using the social identity approach was reviewed to demonstrate the value of such an approach.

## CHAPTER FOUR

### RESEARCH DESIGN

This chapter begins by articulating a social identity perspective on eating behaviour through a reinterpretation of the existing literature. Three specific hypotheses are then derived from the social identity propositions outlined in the previous chapter for experimental test in the empirical chapters that follow. Following the articulation of the hypotheses, the specific methodologies employed in the research project are outlined and justified, as well as details of the samples used. Finally, the goals and structure of the empirical chapters are discussed along with a brief overview of the data presented in each.

#### **A Social Identity Interpretation of the Eating Behaviour Literature**

In Chapter 2, an argument was presented that eating, particularly disordered eating, is subject to significant social influence pressures that are, as yet, not fully accounted for by existing theoretical models. In this section, some of the findings outlined in Chapter 2 are revisited in light of a social identity analysis of social influence. This review will provide a demonstration of the parsimony of this theoretical approach, will address some of the questions left unanswered in Chapter 2, and will ultimately articulate how the two propositions outlined in Chapter 3 translate into specific hypotheses for subsequent test in the empirical chapters.

To summarise a key theme of Chapter 2, a growing body of work has demonstrated that individuals who are similar to one another, either in their contextual environment (e.g., living in the same sorority; Crandall, 1988) or on demographic characteristics (e.g., gender, age; Stice & Agras, 1998; Stice, et al., 2010), are also likely to be similar in terms of their disordered eating behaviours. Individuals who are familiar to one another (e.g., friends, family; Christakis & Fowler, 2007; Valente, et al.,

2009) are also more likely to be similar in terms of their disordered eating behaviours. Although these findings have sometimes been attributed to social influence, rarely have psychologists considered the mechanism for this influence to be grounded in group dynamics. Instead, if any social process is considered, research into eating behaviour typically makes use of interpersonal rather than group-process accounts of social influence. The role of friendship in particular has been emphasised (Paxton, et al., 1999; Valente, et al., 2009). However, such results can also be understood from a social identity perspective. Importantly, the categorisation process outlined in Chapter 3 applies equally to closely affiliated groups without clear labels (e.g., “my friendship group at school”, “my partner and I”, “women who attend my gym”) as to sociological categories (e.g., “women”, “Black Americans”, “baby boomers”). The key mechanism through which group processes emerge is through the *perception* of psychological group membership. Hence, to the extent that self-categorisation occurs in terms of any category (regardless of whether group membership can be observed by a third-party), the social influence processes described in the social identity approach are predicted to emerge. Once this aspect of the theory is recognised, much of the previous literature suggesting enhanced social influence among similar or familiar persons can be reinterpreted more parsimoniously within a social identity framework. That is, similarity and familiarity are (crude) markers of shared group membership, which is a necessary condition of social influence (see *Proposition 1*).

To provide a specific example, Christakis and Fowler (2007) found that obesity “spread” through social networks, with individuals at increased risk if their spouses, siblings, and, especially, same-sex friends, became obese. Neighbours and non-mutual friends did not affect individuals’ risk. Social influence was acknowledged as the mechanism for the spread of obesity, however, little detail was provided for how such influence could be conceptualised. A social identity analysis, however, would suggest

that friendship can be a strong marker for shared group membership (Hogg & Hains, 1998) – either of valued social categories (e.g., gender, age, ethnicity) or of groupings based on the friendship itself (including opinion-based groups, Musgrove & McGarty, 2008). Therefore, it is possible that the mechanism for social influence is shared group membership, in this and many other existing studies of eating behaviour.

A central goal of the current research project was to demonstrate that shared psychological group membership moderates social influence on eating behaviour. This derives directly from Proposition 1, but is also borne out of the observation that the eating literature is rich with examples of social influence where similarity and/or familiarity is confounded with (and is likely to be the basis of) shared psychological group membership. Nevertheless, similarity and shared psychological group membership are not the same thing. Perceived similarity does play a role in shaping categorisation of self and others (via comparative context, Blanz, 1999). However, perceived similarity is also an *outcome* of categorisation as part of a shared in-group (van Rijswijk, et al., 2006). Therefore, objective similarity on features observable to a third-party (e.g. researcher or clinician) is insufficient to determine whether a shared social category is currently perceived by the individual in question. An individual may be objectively very similar to another person, and yet perceive that person to be an out-group member due to a divergence on a characteristic highly relevant to the person's current self-categorisation. For instance, two women may be of similar weight, age and ethnicity; however, if university student affiliation is salient, these attributes of similarity are not contextually meaningful.

Hence, an effective test of Proposition 1 in the domain of eating behaviour is needed to determine whether these previous findings might be incorporated into a social identity analysis of social influence. Therefore, the first hypothesis is:

*Hypothesis 1.* Eating behaviour will be influenced primarily by sources that share a psychological group membership with the perceiver.

Upon re-examining existing literature on eating behaviour in light of the social identity approach, a second theme that dominates research findings is the importance of contextual variation. In contrast (or even, in opposition) to the observation of similarity in eating between individuals, it is clear that two individuals with many similarities (e.g., gender, age, school) may have vastly discrepant outcomes in terms of their eating behaviour and subsequent health consequences (Garner & Garfinkel, 1980; Tyrka, et al., 2002). However, in recognising the importance of *psychological* group membership, the social identity approach is able to account for how individuals in seemingly similar circumstances might behave differently as a function of their different self-categorisation.

In previous analyses, the tension between similarity and difference between individuals in eating behaviours has resulted in explanations situated at different levels of analysis (i.e., sociocultural vs. individual-difference). A strength of the social identity approach is its ability to account for both phenomena. Rather than appealing to personality or genetic explanations of individual difference, the social identity approach gives primacy to *differences in self-categorisation*. As outlined previously, self-perception in terms of a particular social category is due not only to unique features of the individual (encompassed within the *perceiver readiness* component of categorisation), but also due to the comparative and normative *fit* of the category in the current context. By focusing on self-categorisation as the psychological mechanism for social influence at both the personal and social levels of categorisation, the social identity approach represents a bridge between previously incompatible models of disordered eating. The advantage of this social identity analysis of individual difference, relative to a more traditional individual-differences approach (i.e., appealing to

personality or genetics) is that it also acknowledges situational variation in the predictors of behavioural outcomes. Consequently, individual differences can be modelled while still accounting for societal changes.

For example, in the experimental literature on eating in the laboratory, research is plagued by inconsistent results regarding how the *presence of others* impacts food consumption. There is controversy, for instance, over whether eating in groups increases (Redd & De Castro, 1992; Salvy, Howard, Read, & Mele, 2009) or decreases (Pliner & Chaiken, 1990) food intake, relative to eating alone. A social identity analysis would state that the lack of consensus results from defining “presence of others” in absolute terms. While the presence of others may create a comparative context in which self-categorisation in terms of a shared group membership is more likely (resulting in increased conformity to norms), both theoretical and empirical work has demonstrated that self-categorisation in terms of a social identity can often occur while alone (Lea, Spears, & Watt, 2007). For example, a university student reading course materials is likely to self-categorise as a university student, regardless of the presence or absence of others. Therefore, it is possible that inconsistencies in the current literature regarding the effects of eating alone vs. with others may be resolved if researchers focused on participants’ self-definitions, rather than on the absolute circumstances of the experiment.

A further way in which this research question might be reframed is through examining the *meaning* of the social identities invoked in the various laboratory studies of eating. One common way in which researchers have studied the effects of the presence of others on eating is by allowing groups of participants who know each other to eat freely in the laboratory environment. Participants’ level of consumption is then compared to the amount they ate while permitted to eat freely alone. Again, a social identity analysis would argue that this research design frames the “presence of others”



in absolute terms, without attending to psychological differences in the meaning of the situation. Social norms are contextually bound and vary between different families or friendship groups, as well as being influenced by the context of the measurement. Thus, whether participants eat more, less, or the same in the presence of others is dependent upon a) their salient self-categorisations and b) the eating-related content of salient identities, more than the situation itself. A version of this research question, rephrased in social identity terms, would be to assess how the salience of personal vs. social identity impacted on food consumption (and its predictors). Following from Proposition 2 it can be predicted that group-based norms for food consumption will predict eating behaviour only when a shared social identity with fellow-eaters is salient. Conversely, individual attitudes toward food consumption will predict eating behaviour only when personal identity is salient.

As outlined in the previous chapter, the social identity approach conceptualises norms and personality as fundamentally similar constructs, in that they both form the *content* of an identity (social and personal identity, respectively, Onorato & Turner, 2004). It follows, therefore, that this content will only inform attitudes and behaviour when an individual self-categorises at the relevant level of identity. For instance, a woman may be a member of a gym that espouses thinness and weight loss, but these values are unlikely to inform her behaviour all the time. Specifically, only when she self-defines as a gym member would we expect her behaviour to be guided by the group's norms. Conversely, although an individual might hold personal attitudes valuing thinness and weight loss, there will be times (e.g., in a university lecture) when personal identity is not contextually relevant and, therefore, such attitudes would be less influential in shaping behaviour. Thus far, the search for predictors of disordered eating has not considered the possibility that context, in shaping salient identity, may be

responsible for the emergence of qualitatively different predictors of disordered eating in different situations.

This also follows directly from Proposition 2, which is stated as a specific hypothesis below.

*Hypothesis 2.* The predictors of eating behaviour will differ depending on which identity is currently self-defining for an individual.

- a. Individual attitudes to thinness will predict dieting intentions when personal identity is salient.
- b. Group-based norms for thinness will predict dieting intentions when the relevant social identity is salient.

A final feature of the eating literature that is worth revisiting at this point is the continuity between “normal” eating, subclinical disordered eating and diagnosable eating disorders. Review of the criteria for eating disorders ahead of the release of the DSM-V has revealed substantial cross-over between diagnoses (Eddy, et al., 2008) and also suggests significant controversy over whether any indicators of a truly “clinical” presentation of disordered eating are evidence-based (Wonderlich, et al., 2007). Importantly for this analysis, the social-psychological predictors of disordered eating (e.g. attitudes and behaviours of fellow group members) are similar for subclinical and clinical samples (Bergstrom & Neighbors, 2006). This is not to say that individuals do not differ in the severity or chronicity of their disordered eating. Rather, the evidence suggests that there is a *continuum* of severity, rather than presentations that differ qualitatively in their psychological processes (Hay, 1998). For this reason, the current research program aims to assess the corollary to Proposition 1 in an eating disordered sample, in order to demonstrate that the process of social influence is fundamentally the same as in normal populations. This leads to the third hypothesis:

*Hypothesis 3.* Among individuals with an eating disorder, the perception of shared group membership with the source of a social influence attempt regarding appropriate weight will predict the message's effectiveness.

These three hypotheses are in part designed to aid the integration of existing research into a social identity framework, in line with the examples provided earlier in the chapter. However, one of the major barriers to such integration is the dominance of a *sociological* conception of group membership. That is, rarely have researchers acknowledged and measured participants' *psychological* affiliation with a group membership of interest. Instead, it is typically assumed that social characteristics of similarity, affiliation and group membership can be measured objectively based on simple demographic criteria. The social identity approach rejects this, placing primacy on an individual's subjective interpretation of relationships as the key moderator of group processes. However, as research outside this tradition typically does not include measures of psychological variables such as social identification, we are left having to speculate on the likely psychological state of participants in previous research. For instance, it can be assumed that body weight was made salient in Salvy et al's (2007) study, where participants modelled confederates only when they were of a similar weight to themselves. It might also be assumed that participants' in Christakis and Fowler's (2007) longitudinal study perceived a stronger shared group membership between themselves and same-sex friends, compared to opposite-sex friends (on average). However, these inferences remain educated guesses without empirical data to support them. By testing hypotheses derived directly from the social identity approach in the domain of eating behaviour, this thesis strengthens the argument for the wider applicability of this theoretical model, including in such reinterpretation of previous findings.

## Methodology

The research program consists of seven datasets: 5 experimental studies and 2 correlational studies (one of which is prospective). A predominantly experimental paradigm was chosen for two reasons. Firstly, previous research into social processes in disordered eating – even highly impressive research such as Christakis and Fowler’s (2007) obesity contagion work - has received criticism due to alternative explanations for the data. Only a rigorous experimental design can allow for confident inferences about causal associations between variables. Secondly, although efforts were made to recruit broad and diverse samples, none of the studies in this thesis can claim to be representative of the population. Descriptive statistics and correlations reported in these studies are, therefore, relevant primarily to young, normal-weight Australian women, who comprised the majority of the samples. However, the goal of this research was not simply to assess absolute levels of disordered eating, but rather to demonstrate the psychological processes driving social influence in the domain of eating. These processes have broad relevance and are more likely to be fundamental to human psychology (Turner & Oakes, 1997).

The core independent variables used throughout the research program were selected for their direct relevance to the hypotheses. Where possible, variables were manipulated using paradigms that have established success in the literature. In the two studies assessing the first hypothesis, the primary independent variables were *source* of the influence attempt (in-group vs. out-group) and the *content* of the eating norm itself. Social identification was measured in these two studies to ensure that it was, on average, high. By contrast, in the three studies assessing the second hypothesis, salient psychological group membership was the primary independent variable, which was manipulated in one study (using identity salience) and measured in two studies (using the proxy of social identification). Additionally, these studies measured either

individual attitudes or group norms toward thinness as other independent variables. Finally, the third hypothesis was assessed in one study with a clinical sample. The independent variables in this study were health promotion message content (manipulated) and social identification (measured).

Throughout the research program, the core dependent variables are behavioural in nature (or proxies for behaviour). This is considered a strength of the research program for several reasons. Firstly, it is increasingly common for psychological research to rely on the self-report of internal states as dependent variables (Baumeister, Vohs, & Funder, 2007). However, the link between these internal mental processes and tangible outcomes is not always well-established (Nisbett & Wilson, 1977). Particularly in the health domain, in which behaviours are the key predictor of long-term outcomes, it is not acceptable to rely purely on self-report of attitudes or emotional states (e.g., body image). This critique extends to recent implicit measurement techniques, which have a highly contested relationship with objective behavioural variables (Frieze, Hofmann, & Schmitt, 2009). Self-report of past eating behaviour in particular is tenuous. Substantial evidence has established that individuals underreport their food intake by as much as fifty percent (Lichtman et al., 1992; Livingstone, Prentice, & Strain, 1990) and that this tendency is systematically related to characteristics such as weight and dieting status (Klesges, Eck, & Ray, 1995). Given that it is the actual *behaviours* of disordered eating (e.g., fasting, purging) that dictate health outcomes, it is necessary to focus on behaviour as an outcome of interest. Therefore, despite the practical challenges associated with measuring actual behaviour, it was considered an essential methodological feature of the current research program.

The ideal dependent variable in this research project, then, would be one that directly measures individuals' eating behaviours or behavioural precursors to eating. Several studies in the research program make use of these dependent variables,

including the amount of popcorn consumed in a laboratory environment and whether participants chose to click on a weblink to find out more about healthy eating. However, it is not practically feasible in all cases to measure actual eating, particularly changes in eating behaviour over time. Therefore it was necessary in the research program to identify a suitable proxy behavioural measure that could be used in self-report designs.

Presuming that such a proxy measure could be found, what aspect of eating behaviour would it ideally capture? Four desirable features were identified and are discussed below. Firstly, given that it is an unhealthy pattern of behaviour, over months and years, that represents disordered eating, the measure should refer to a time-period of several months rather than any single eating episode. Secondly, the measure should be predictive of future behaviour rather than past behaviour. This is because a) logically, an experimental manipulation cannot effect change in past behaviours, b) the nature of the hypothesised social influence process suggests that vulnerability for future disordered eating may be predicted using group-process variables and c) only a measure of future behaviours will be sensitive to clinical intervention. Thirdly, it is desirable for the measure to be relatively stable over time, but not trait-like (i.e. unmalleable) since disordered eating is known to both reflect a consistent behaviour pattern and be responsive to social influence. Fourthly, the scope of this project includes both problems of over-eating and under-eating, and therefore a measure of behaviours associated with both kinds of disordered eating is desirable. Specifically, previous research has suggested that it is intentional dieting behaviour that predicts both weight gain over time and the increased likelihood of meeting criteria for an eating disorder diagnosis (Hill, 2004; Stice & Agras, 1998). Dieting can therefore be considered a relevant precursor to more severe forms of eating problems.

In reviewing available scales in the literature, the Restrained Eating Scale (Herman & Polivy, 1980; also see its variants Laessle, Tuschl, Kotthaus, & Prike,

1989), is the only measure that meets the majority of these criteria. First developed by Herman and Mack (1975), the Restrained Eating Scale was designed to measure chronic dieting as a risk factor for the onset of an eating disorder. However, several problems make the Restrained Eating Scale a poor choice of dependent variable for the current studies. These will be reviewed in detail in Chapter 5, however to summarise: it measures past behaviour rather than future intentions, and substantial evidence now exists that it does not, in fact, measure dieting *per se* but rather a pre-existing tendency toward over-eating (Lowe & Butryn, 2007; Stice, Cooper, Schoeller, Tappe, & Lowe, 2007).

Therefore, although there are good reasons to focus on future dieting behaviour as an outcome of interest, no reliable measure exists that captures intentions to engage in dieting behaviour in the immediate future. Therefore it was not possible to use a previously validated measure as the key dependent variable of interest in this thesis. For this reason, a Dieting Intentions Scale was created for use in the research project. This scale is based on research in the Theory of Planned Behaviour (Ajzen, 1991) tradition that has established that, for conscious behaviours, the best predictor is often a person's intention to engage in the behaviour (e.g., Armitage & Conner, 2001). In fact, eating behaviour has been studied within this literature and several (unvalidated) scales exist measuring future dieting intentions (e.g., Armitage & Conner, 1999; Åstrosn & Rise, 2001). Therefore, the Dieting Intentions Scale was adapted from this literature and used as the primary dependent variable in the research program.

Over the course of the project, sufficient data were collected to (retrospectively) provide evidence of the reliability and validity of the Dieting Intentions Scale. Therefore, the first empirical chapter (Chapter 5) presents the development and validation of the scale. Consequently, some of the studies described in this chapter do not represent separate data collection occasions from the experimental studies, but



rather descriptive secondary data collected while addressing the key research questions. Nevertheless, this chapter is presented first due to its importance in establishing the validity of the dependent variable used in later chapters. Throughout the chapter, footnotes are used to include additional information about details of the studies, which are then fully explicated in the later experimental chapters. An overview of data collection occasions and the structure of the empirical chapters is provided in Figure 1.

In terms of the data collection, the majority of the studies in this research program were conducted online. Although this decision was a pragmatic one, it is supported by an increasing body of evidence indicating that online studies do not compromise data quality (Hewson, Charlton, & Brosnan, 2007). Research has demonstrated that data collected online is not only interchangeable with that collected in a university laboratory environment, but can actually increase the diversity of the sample (Smith & Leigh, 1997). Furthermore, the two studies in the research program that were conducted in a laboratory setting support the results obtained in the online environment.

### **Samples**

The samples were drawn from a population that was predominantly young, female and Australian (there are, however, exceptions, e.g., three studies included male participants). In addition to the convenience of these samples, there were theoretical reasons for focusing on a young and female population. Specifically, research has demonstrated that this demographic is relatively vulnerable to disordered eating, with as many as 20% of university-aged women meeting diagnostic criteria for an eating disorder and many more exhibiting subclinical disordered eating behaviour (Baslow, et al., 2007; Taylor, et al., 2006). Of course, it follows from the social identity approach to social influence that there will be different rates and presentations in eating behaviour between men and women, due to differences in the group-based norms, values and

beliefs relevant to eating. Empirical work has supported this assertion, for example, showing that muscle dysmorphia may, in fact, represent a male analogue for anorexia nervosa (Davis & Scott-Robertson, 2000).

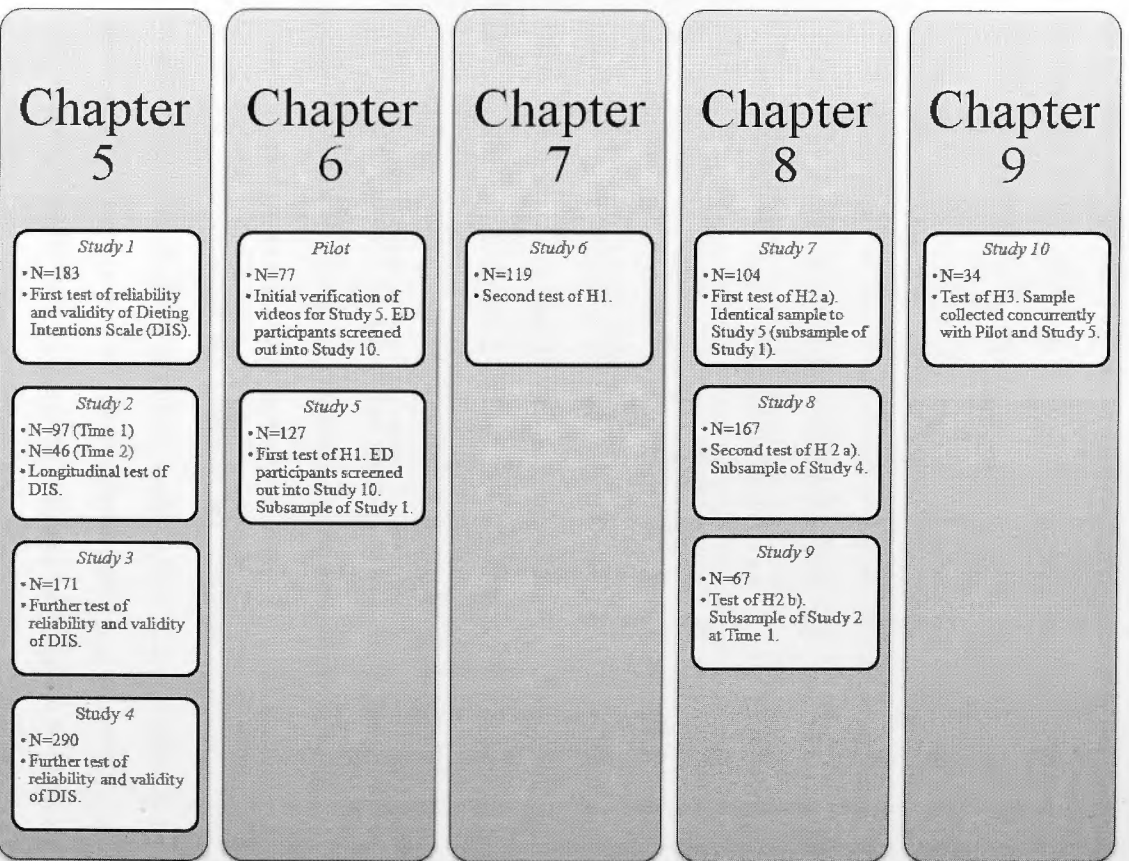
Despite this difference in manifest behaviour, the social-psychological processes resulting in disordered eating are assumed to be the same among men and women. However, the goal of this thesis is not to explore the differences between men and women in disordered eating, but rather to understand the role identity plays in the development and maintenance of disordered eating behaviours. As the majority of disordered eating behaviours, particularly the more severe forms, occur in women (Hoek, 2006), gender identity will be explored inasmuch as it provides an example of the role of identity in shaping these behaviours. The research program also makes use of various other identities, such as Australian National University (ANU) student, nationality and personal identity. This allows the theoretical principles to be generalised beyond any one identity and its associated context.

This thesis may also be subject to scrutiny for not primarily using samples drawn from a clinical population. Mental health research that makes use of “normal” or sub-clinical samples has been criticised for assuming that there are no qualitative differences in the psychology of disordered individuals (Vredenburg, Flett, & Krames, 1993). However, unlike many studies of mental health, the current research program proposes that the “disordered” features are present in the social environment, not merely in the individual. By conducting research in a non-clinical sample, it is possible to identify whether the proposed psychological processes are responsible for disordered eating behaviours, independent of whether these meet diagnostic criteria (which, in themselves, have been the subject of controversy as discussed in Chapter 2). To ensure the generalisability of these findings to clinical populations, however, a purely clinical

sample where all participants met criteria for an eating disorder was used to test Hypothesis 3.

### Structure

The empirical chapters are organised around the three hypotheses. Specifically, Chapter 5 outlines the development and validation of the Dieting Intentions Scale, which is a key dependent variable used in later chapters. Chapters 6 and 7 provide tests of Hypothesis 1 – first using a persuasive message and secondly using confederates in a laboratory environment. Chapter 8 assesses Hypothesis 2 in three studies. Finally, Chapter 9 tests Hypothesis 3 in an eating disordered population. These chapters are structured as scientific journal articles, with the focus of presenting a coherent scientific narrative rather than a chronological account of the project. In order to meet this goal, data collected from a particular sample is, at times, divided among several chapters and not presented consecutively. Figure 1 provides a graphical simplification of how the seven data sets are presented as 10 studies, and the chapters in which they are presented. As outlined above, Chapter 5 draws upon samples used in later chapters as the evidence for scale validation was accumulated across the course of the research program. The other instance of a dataset being presented in multiple chapters is the first full-scale study conducted (Study 5), which was a complex and thorough experiment that provided partial support for all three hypotheses. The test of Hypothesis 1 is presented in Chapter 6 as Study 5, and followed up with Study 6, in Chapter 7. The test of Hypothesis 2 is presented in Chapter 8 as Study 7, and followed up with Studies 8 and 9 in the same chapter. Finally, the test of Hypothesis 3 is presented as Study 10, in Chapter 9. This data was collected concurrently with the Pilot and Study 5 (eating disordered participants could not complete these studies for ethical reasons, and so were screened into Study 10).



*Figure 1. Structure of the empirical chapters and data samples.*

*The consecutive numbering of studies is not intended to suggest that the thesis included 10 unique data samples, but rather to ensure clarity when discussing each test of the hypotheses throughout the empirical chapters. The thesis included 7 unique data samples (including the Pilot) for a total of 971 unique usable participants. Studies 1, 5 and 7 are from the same data collection occasion, as are Study 2 (Time 1) and Study 9, and Studies 4 and 8.*

A further point to be made regarding the structure of the empirical chapters is that due to their journal article form, they include some repetition of the theoretical and empirical review already covered in the preceding chapters. This was necessary to ensure each empirical chapter was comprehensible as a stand-alone document that could be submitted for publication.

## CHAPTER FIVE

# THE DEVELOPMENT AND VALIDATION OF THE DIETING INTENTIONS SCALE (DIS)<sup>1</sup>

### Abstract

This chapter presents information on the psychometric properties of the Dieting Intentions Scale (DIS), a new scale of dieting that predicts future behavioural efforts to lose weight. We begin by reviewing recent research indicating theoretical and empirical problems with traditional approaches to measuring dieting. The DIS addresses several of these problems by a) focusing on naturalistic dieting behaviour and b) being future-oriented. Four validation studies are presented with a total of 741 participants. We demonstrate that the DIS has predictive utility for dieting behaviours and is positively correlated with other measures related to eating, weight, and shape. Furthermore, the DIS demonstrates discriminant validity by not being related to constructs such as self-esteem and social desirability. The DIS also has high internal consistency, with a one-factor solution replicated with confirmatory factor analysis. The potential uses of the scale in both research and clinical settings are considered.

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<sup>1</sup> A version of this chapter is published in the journal *Psychological Assessment*:

Cruwys, T., Platow, M. J., Rieger, E. & Byrne, D. G. (2013). The development and validation of the Dieting Intentions Scale (DIS). *Psychological Assessment*, 25(1), 264-278.

## Literature Review

The scientific study of eating behaviour has become more pertinent in recent decades as rates of obesity and disordered eating have risen (Battle & Brownell, 1996). Dieting has been a central concept in the eating literature, and continues to be encouraged by health professionals as a weight-management strategy (Campbell, Engel, Timperio, Cooper, & Crawford, 2000). However, it became apparent as early as the 1970s that many people fail to distinguish between healthy and unhealthy forms of dieting, and that repeated dieting attempts are associated with: (1) long-term weight gain (Hibschler & Herman, 1977), and (2) an increase in disordered eating (including excessive food restriction, binge-eating, and purging [Garfinkel, Moldofsky, & Garner, 1980]). This observation led to increased interest in dieting as a predictor of these poor outcomes, and the development of several models positing the causal role of dieting in the development of binge eating and other disordered eating behaviours; the most notable of these models is Polivy and Herman's (1985) dietary restraint model.

The dietary restraint model states that dieters impose a cognitive *restraint* on their naturalistic eating behaviour in an attempt to limit food intake. This restraint is dependent on continued cognitive attention. When cognitive attention is broken down, restrained eaters are said to become *disinhibited*, and engage in overeating, which biologically compensates for food deprivation. Polivy and Herman (1985) claim that, for a minority of people, this cycle becomes more severe over time, resulting in bulimia nervosa or binge eating disorder. Therefore, although dieting may begin in a way that resembles healthy weight management, the dietary restraint model posits that, over time, eating becomes increasingly disordered and unhealthy as a result of food deprivation and increasingly extreme attempts at weight control. Herman and Polivy (1980) developed the Restrained Eating Scale to measure the extent to which an individual engages in this form of chronic dieting.



More recent research has challenged the unidirectional model of a causal relationship between dieting, disinhibited eating, and weight gain. The causal link between dieting and disordered eating has been called into question by research demonstrating that experimentally-induced successful weight-loss through dieting leads to a reduction in bulimic symptoms, such as binge eating behaviours (Presnell, Stice, & Tristan, 2007; Stice, Martinez, Presnell, & Groesz, 2006). This suggests that, at least in controlled experiments, it is possible to engage in a form of dieting that has positive consequences for physical and mental health. Also inconsistent with the dietary restraint model is research demonstrating that dieting status (i.e., whether or not a person is “on a diet”) fails to predict over-eating in either clinical or subclinical samples (Van Strien, Engels, Van Leeuwe, & Snoek, 2005). Finally, research has also found that naturalistic dieting (i.e., the pattern of eating behaviour typically exhibited by a person who describes themselves as “on a diet”) is typically not associated with a systematic reduction in caloric intake, making it unlikely that actual food deprivation occurs (Neumark-Sztainer, Jeffery, & French, 1997; Stice, Cooper, Schoeller, Tappe, & Lowe, 2007).

Taken together, these findings suggest two things. Firstly, it is likely that it is *attempted* dieting (rather than successful dieting) that is the more common presentation, and it is failed attempts at weight loss that may be driving any causal association between reported dieting, disordered eating and weight gain. Secondly, there is no reason to expect that the association between dieting and weight gain is unidirectional, with dieting causing weight gain via its disinhibiting effects. Indeed, dieting may also, or alternatively, be an attempt to curb a pre-existing tendency toward weight gain and/or disordered eating, as will be explored further below. Therefore, a continued research emphasis on the measurement and prediction of dieting behaviours is warranted to provide insight into these controversies.

### Concerns with Existing Measures of Dieting

Measuring dieting accurately has proven to be challenging. It is well-known that self-report measures of food intake are inaccurate, with people underreporting by as much as 50% their calorie consumption (Schoeller, 1995). This inaccuracy may be partly due to the fact that self-report of food intake is highly susceptible to social desirability bias, particularly among those with higher food intakes (Hebert, Clemow, Pbert, Ockene, & Ockene, 1995). For women especially, limiting food intake is perceived to show self-discipline, good judgment, and competence (Muhlheim, Allison, Heshka, & Heymsfield, 1998), providing a clear motivation for the under-reporting of food intake.

Some objective indicators of food intake do exist. One example is doubly labelled water, wherein chemical elements in the water are partly replaced for tracing purposes (i.e., *labelled*) with an uncommon isotope (Speakman, 1997). Although such techniques provide accurate measures of metabolic rate and food intake, the complexity, expense of the equipment required, and time-delay of measurement is prohibitive for the majority of research and clinical settings. Perhaps more importantly, these strategies to measure dieting focus exclusively on food intake at the expense of the goal-related components of the construct. This is problematic because most research suggests it is *efforts* to lose weight, rather than actual caloric deprivation, that is associated with poor outcomes (Koenig & Wasserman, 1995; McCarthy, 1990). These measurement strategies also confound weight-loss dieting with other reasons for low food intake, such as poor health or low caloric requirements.

The dominant approach to measuring dieting has been to assess an individual's degree of *dietary restraint*. The *Restrained Eating Scale* (RES) is a 10-item measure designed to assess chronic dieting, and has been widely used in the study of eating behaviour. Decades of research have provided evidence of the scale's internal

consistency (Allison, Kalinsky, & Gorman, 1992; Banasiak, Wertheim, Koerner, & Voudouris, 2000; Laessle, Tuschl, Kotthaus, & Prike, 1989). Consistent with the dietary restraint model, the RES has been used successfully to predict over-eating (i.e., disinhibition) in various laboratory contexts (for a review, see Ruderman, 1986). However, in light of the new dieting research outlined above, the appropriateness of the RES as a measure of dieting has been called into question. Theoretically, the RES is based on a conceptualisation of dieting (i.e., as causally related to bingeing) that has since been challenged. Perhaps more crucially, however, a number of studies have demonstrated empirical problems with the RES, most notably that it is unlikely to be measuring dieting *per se*. For instance, when objective measurements are used, the RES does not predict reduced calorie intake in either the short or long-term (Stice et al., 2007; Stice, Fisher, & Lowe, 2004). Further, one study found that RES scores did not adequately distinguish responses to the question, "Are you currently dieting to lose or maintain weight?" Forty-four per cent of restrained women (as defined by the RES) and 31 per cent of unrestrained women claimed to be currently dieting (French, Jeffery, & Wing, 1994). In summary, over the past decade, aspects of the validity of the RES as a measure of dieting have been brought into question.

There is now a growing consensus among researchers that the RES is most likely to be measuring individual variation in vulnerability to over-eating. This vulnerability in turn predicts weight gain, and subsequently, the frequency of (typically unsuccessful) attempts at weight control. Lowe (1993) argues that individual differences in susceptibility to overeating and weight gain *precede* restrained eating behaviour, which is an attempt to curtail this tendency. Restrained eaters are experiencing *hedonic hunger*, which is the perceived deprivation of pleasurable food experiences, rather than actual physiological hunger (Lowe & Butryn, 2007). These

individuals nevertheless *perceive* themselves to be food deprived, and hence score highly on the RES and may report a lower caloric intake (Van Strien, 2008).

As a result of this reconceptualisation of the construct measured by the RES, there is a vacuum in the accurate self-reported measurement of dieting. Nevertheless, it is clear that dieting, defined as efforts to restrict food intake with the goal of weight loss, plays a central role in predicting both under- and over-eating pathologies. Dieting is also of particular interest as, unlike constructs related to internal states (e.g., body dissatisfaction), dieting has a strong behavioural component. To the extent that the prediction and prevention of obesity and eating disorders is a goal, dieting may be more amenable to change than attitudinal or personality constructs. Although other dieting scales exist (e.g., The Eating Attitudes Test, Garner, Olmsted, Bohr, & Garfinkel, 1982; The Three Factor Eating Questionnaire, Stunkard & Messick, 1985; The Dutch Eating Behavior Questionnaire, Wardle, 1987), they remain focused on past behaviour and aim to measure a stable individual difference construct. Therefore, existing scales (including the RES) are most appropriately seen as stable indicators of aspects of personality and/or biology that have placed an individual at risk in the past.

We suggest that a scale specifically designed to predict *future* behaviour is more valuable for both accurately assessing an individual's future risk and for use by treating professionals. Behaviourally-oriented assessment may also have the advantage of reducing some of the measurement problems with previous self-report dieting scales. A reliable and valid measure of future dieting behaviours is needed to advance eating research and provide a clinically useful indicator of future risk that is malleable.

The Theory of Planned Behaviour (TPB) literature posits that one of the strongest predictors of behaviour is behavioural intention (Randall & Wolff, 1994). Decades of research in this domain have shown a correlation of at least .53 between reported intentions and actual behaviours; furthermore the intention-behaviour

relationship has been demonstrated to be causal (Webb & Sheeran, 2006). Despite the success of the TPB in predicting behaviour, measures of intention have been used only rarely outside research explicitly testing the TPB (i.e., utilising the predictors of attitudes, subjective norms, and perceived behavioural control). Research that is more broadly interested in predicting and conceptualising eating behaviours would benefit from the use of behavioural intentions measures as a proxy for behaviour in preference to more abstract constructs such as body dissatisfaction. To this end, the Dieting Intentions Scale (DIS) was developed specifically to measure the intention of an individual to engage in dieting behaviours (both healthy and unhealthy) in the immediate future. In this chapter, four studies are presented that outline the development and validation of the DIS.

### **Development of the Dieting Intentions Scale**

In considering the extant evidence about the nature of dieting, we identified four desirable features that a measure of dieting would ideally have. Specifically, it should be:

- 1) self-report in structure, and short in length, for ease of administration in research and clinical settings;
- 2) concerned with dieting *behaviours* (as opposed to internal states), as the evidence suggests that these behaviours powerfully predict disordered eating and weight gain (Neumark-Sztainer, Wall, Haines, Story, & Eisenberg, 2007; Polivy & Herman, 1985; Stice, Cameron, Killen, Hayward, & Taylor, 1999);
- 3) concerned with the behaviours of typical, naturalistic dieting (i.e., usually short-lived, ineffective, and involving a mix of both unhealthy and healthy behaviours), as the evidence would suggest that it is attempted dieting rather than successful dieting that is an important risk factor (Presnell, Stice, & Tristan, 2008; Stice, et al., 2006); and

- 4) future-oriented rather than measuring a chronic behavioural pattern, in order to enhance its usefulness as a predictor (of future behaviour) in basic and intervention research. This is why intentions were chosen for the content of the scale; evidence suggests both that a) people are able to accurately report their intentions, and b) these have a strong relationship with behaviour (Ajzen, 1991; Armitage & Conner, 2001). We chose three months as a period long enough to have a measurable impact on health outcomes while still maintaining a strong relationship between intentions and actual eating behaviour. This time period is also consistent with the timeframes used in the diagnostic criteria for the recognised eating disorders (American Psychiatric Association, 2012).

There are six purposes of the four studies. Briefly, these are to evaluate the convergent, discriminant, predictive, and incremental validity of the DIS, as well as its factor structure overall and for males and females. Each study addresses at least two of these purposes. These are outlined in more detail in Table 1, which also indicates the specific goals of each study.

### Study 1

The first study aimed to develop the Dieting Intentions Scale, as well as determine its descriptive properties. In addition, Predictions 1, 2, 4 and 5 outlined in Table 1 were tested in order to provide initial evidence for the reliability and construct validity of the DIS. The first prediction was that the DIS would have a one-factor solution in an exploratory factor analysis and good reliability (internal consistency). The second prediction stated that the DIS would significantly predict a behavioural measure of interest in weight loss information (predictive validity). The third prediction was that the DIS would be uncorrelated with measures of performance self-esteem and social self-esteem (discriminant validity). Fourthly and finally, we predicted that the DIS would be moderately positively correlated with measures of appearance self-

Table 1

*Predictions Regarding the Psychometric Properties of the Dieting Intentions Scale (DIS).*

Prediction	Study 1	Study 2	Study 3	Study 4
DIS will have a one-factor solution with high internal consistency	✓	✓	✓	✓
DIS will predict behaviours consistent with attempted weight loss ( <i>predictive utility</i> )	✓	✓		
DIS will have <i>incremental validity</i> in predicting dieting over and above existing measures of dieting		✓		
DIS will be unrelated to self-esteem, social desirability and mood ( <i>discriminant validity</i> )	✓		✓	
DIS will have a positive relationship with measures related to eating, shape and weight (e.g. body dissatisfaction, BMI; <i>convergent validity</i> )	✓	✓		✓
DIS will have a similar internal structure and associations for males and females				✓



esteem, body dissatisfaction, BMI, and degree of desired weight loss (convergent validity).

## Method

**Participants.** Participants were 183 females recruited from the Australian community via advertising on noticeboards, newspapers, women's health forums, and social networking sites. The study was advertised as research on "health promotion". A minority of participants were university students who received course credit; other participants received no incentive. The mean age of participants was 27.04 (range was 18-69 years,  $SD = 11.71$ ), with a mean BMI of 24.76 ( $SD = 6.63$ ).

**Materials and procedure.** After following a web-link to the online study, participants completed the following questionnaires in the order outlined below.<sup>2</sup>

**Body mass index.** Among other demographic information (age and gender), participants were asked to indicate their height and weight. Self-report of height and weight has been found to predict almost 90 per cent of the variance in measured height and weight (ABS, 2007) and is, therefore, an acceptable indicator of true body dimensions.

**Degree of desired weight change.** Participants were asked to indicate their ideal weight in kilograms. The difference between their self-reported current weight and ideal weight was calculated to measure degree of desired weight loss (or, in a minority of cases, gain).

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<sup>2</sup> In addition, participants completed a health behaviour questionnaire, a social identification scale (for female identity), watched a health promotion video (1 of 5 versions), indicated their healthy eating intentions and had the opportunity to click on a link to find out more about healthy eating. These variables, including their relationship with the DIS, are analysed in depth in Chapter 6 (Study 5) and Chapter 8 (Study 7).

**Body dissatisfaction.** The Body Image States Scale was used to assess body dissatisfaction among participants (Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). This six-item inventory provides an indication of an individual's current satisfaction with his/her appearance (e.g., "Right now I feel ... with my physical appearance"; "Extremely dissatisfied" to "Extremely satisfied") and has established good reliability and validity of its test scores (Cash et al., 2002). A state, rather than trait, measure of body dissatisfaction was chosen as the DIS is not intended to measure a personality construct and, as such, should be responsive to contextual cues. Consequently, it would be expected that a state measure of body dissatisfaction would more accurately capture common variance with the DIS. Response options were reduced from nine to seven on the scale, in order to improve readability in the currently employed online display.

**Dieting intentions.** The Dieting Intentions Scale was developed with reference to the Theory of Planned Behaviour literature, particularly work on healthy and unhealthy eating behaviour. Within this literature, items very similar to the Dieting Intentions Scale have been used for some time, albeit in an unvalidated form (Åstrosk & Rise, 2001; Fielding, Terry, Masser, & Hogg, 2008; Johnston & White, 2003; Louis, Davies, Smith, & Terry, 2007; Smith et al., 2008). We selected seven of the most commonly used items (displayed in Table 2).<sup>3</sup>

The first two items measure the cognitive intention to engage in dieting behaviours in the next three months. Five semantic differentials measure the evaluative and emotional intention a person has to engage in dieting in the next three months. We

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<sup>3</sup> Across the four studies described in this chapter, an additional five items were trialed for inclusion in the DIS (also from the Theory of Planned Behavior literature, e.g., "I am highly motivated to lose weight" and "I intend to cut energy-dense food from my diet"). However, at no stage did the inclusion of additional items include the psychometric properties of the final seven-item scale presented here.

Table 2

*The Dieting Intentions Scale.*

Variable
1. In the next three months, I intend to go on a diet. <i>Strongly disagree, Disagree, Somewhat Disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree</i>
2. In the next three months, I intend to reduce my calorie intake. <i>Strongly disagree, Disagree, Somewhat Disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree</i>
If I diet in the next 3 months, this would be . . .
3. <i>Harmful ... beneficial</i>
4. <i>Unpleasant ... pleasant</i>
5. <i>Useless ... useful</i>
6. <i>Foolish ... wise</i>
7. <i>Bad ... good</i>

The Dieting Intentions Scale (DIS) is measured on a seven-point Likert scale, with the anchors outlined in italics in the table above.

The DIS is scored by taking an average of participant responses to the seven items. Averaging, rather than summing, responses allows the score to be easily interpreted with reference to the scale anchors (e.g., a DIS score of 5 corresponds to "somewhat agree," or a mildly positive intention to diet; a score of 2, on the other hand, corresponds to a moderately strong intention to not diet).

chose three months as a period long enough to have a measurable impact on health outcomes while still maintaining a strong relationship between intentions and actual eating behavior. This time period is also consistent with the timeframes used in the diagnostic criteria for the recognized eating disorders (American Psychiatric Association, 2012). Although the semantic differential items resemble an attitude scale, they are worded such that individuals are oriented very specifically toward dieting in the immediate future. As such, we believe that these items are better viewed not as a measure of attitude, but rather as the emotional component of a person's intentions. The factor analytic and validation results to follow support this approach.

***Self-esteem.*** Three dimensions of self-esteem were measured using the State Self-Esteem Scale (SSES): appearance, social and performance self-esteem (Heatherton & Polivy, 1991). This is a 20-item scale that yields good reliability and validity (including in the eating domain) for both the subscales and overall scale. Items (e.g., "I feel good about myself") are scored on a five-point scale from "Not at all" to "Extremely." Similar to body dissatisfaction, a state measure of self-esteem was used in preference to a trait measure due to the proposed context-dependence of the dieting intentions construct. In addition, the three dimensions of this scale enabled a test of predictions concerning both convergent and discriminant validity. One domain of self-esteem in which common variance was expected, due to its relation to eating, weight and shape, was the appearance subscale. Conversely, the social and performance subscales were expected to be unrelated to the DIS (and hence provide evidence of discriminant validity).

***Proxy for attempted weight loss behaviour.*** As the DIS is designed to measure the likelihood of *behavioural* change in pursuit of a weight loss goal, it was desirable to have a behavioural indicator of efforts to lose weight. At the end of the study, participants were presented with a web-link which they could choose to browse at their

leisure. The link included a picture of the banner for the website [www.weightloss.com.au](http://www.weightloss.com.au). Therefore, this was a categorical measure of efforts to diet based on whether participants chose to click on this link or not. This type of proxy measure has a long history of extensive use in the social psychological literature (e.g., Aronson, Brewer & Carlsmith, 1985; Cialdini, Reno & Kallgren, 1990; Platow et al., 1999). Research is increasingly demonstrating that internet behavior is strongly related to non-internet behavior (Meyerson & Tryon, 2003), including in the health domain (Griffiths, Farrer & Christensen, 2007). Note, however, that we would not expect clicking on the link to predict actual weight loss; rather, it suggested that the participant was interested in *trying* to lose weight.

## Results

**Internal consistency.** An examination of the correlation matrix revealed that all of the DIS items were positively and significantly correlated, ranging from .40 to .89. The scale had a high degree of internal consistency ( $\alpha = .91$ ). Principal-axis factoring revealed a one-factor solution (confirmed using the Kaiser criterion, scree examination and a Monte-Carlo modification of parallel analysis; Glorfeld, 1995) which accounted for 63.12% of the variance in scores. Factor loadings ranged from .56 to .92, and eigenvalues were 4.68 for the first and 0.82 for the second factor (not extracted).

The overall mean of the DIS was 4.15 ( $SD = 1.43$ ), corresponding to a moderate level of dieting intent. The full range of the scale was utilised, with individuals in this sample scoring as low as 1 and as high as 7. No significant skew ( $z = -.19$ ) or kurtosis ( $z = -.50$ ) in the distribution was observed.

**Predictive validity.** In order to assess the capacity of the DIS to predict behaviours that are consistent with attempted weight loss, we investigated whether individuals with higher DIS scores were more likely to click on an informational link to [www.weightloss.com.au](http://www.weightloss.com.au). A binary logistic regression was conducted with clicking on

the link as the dependent variable and the DIS as the predictor variable. Overall, this model was a significant improvement over the null model,  $\chi^2(1) = 5.07, p < .05$ . Dieting intentions predicted clicking on a link to find out more about weight loss (Wald's  $F(1,182) = 4.77, p < .05$ ; OR=.74 (95% CI = .56-.97), Nagelkerke's Pseudo  $R^2 = .05$ ). This effect was such that 34.04% of participants in the highest quartile on the DIS ( $> 6$ ) clicked on the link, compared to only 12.73% of participants in the lowest quartile ( $< 2.05$ ) who clicked on the link.

**Convergent and discriminant validity.** Table 3 presents the correlations between the DIS and the other measures included in the study, along with the mean, standard deviation and internal consistency (where applicable) for each measure.

Correlations were strong and in the expected direction between the DIS and BMI, degree of desired weight loss, body dissatisfaction, and appearance state self-esteem. Thus participants with stronger dieting intentions as indexed by higher DIS scores had a higher BMI, desired a greater degree of weight change, were less satisfied with their bodies, and had lower appearance state self-esteem. As predicted, there was no significant correlation between the DIS and either social state self-esteem or performance state self-esteem.

## Discussion

This study has demonstrated that the Dieting Intentions Scale has excellent internal consistency and a single-factor solution among a community sample of females. Furthermore, the study provides support for the convergent and discriminant validity of the scale. Specifically, strong relationships were found with other state measures related to eating, shape, and weight (i.e., state body satisfaction and state appearance self-esteem), strong relationships with BMI and desired weight loss, and non-significant relationships with state measures of social and performance self-esteem.

Table 3

*Study 1: Descriptive Statistics and Correlations with the Dieting Intentions Scale.*

	Mean	SD	Cronbach's <i>a</i>	Correlation with DIS	Significance level ( <i>p</i> )
Dieting Intentions Scale	4.15	1.43	.91	-	-
Body Mass Index	24.76	6.63	-	.37	<.01
Degree of desired weight loss (kilograms)	9.26	13.69	-	.43	<.01
Body Image State Scale <sup>a</sup>	3.86	1.20	.85	-.39	<.01
Appearance State Self-Esteem	17.52	5.04	.86	-.37	<.01
Social State Self-Esteem	23.56	6.03	.86	-.09	ns.
Performance State Self-Esteem	25.84	5.01	.83	-.03	ns.

*N* = 183

a. Note that the Body Image State Scale used a 7-point and not a 9-point scale, and therefore, the mean is expected to be lower than in previous studies.



An important outcome of this study was demonstrating the predictive utility of the Dieting Intentions Scale for behaviours consistent with dieting. Specifically, participants scoring higher on the DIS were more likely to click on a web-link to find out more about weight loss. Given that the DIS is designed to be a measure of the likelihood of engaging in specific *behaviours* of dieting, this is an important validation of the scale.

However, several questions about the DIS remain to be addressed. Perhaps most importantly, the criterion of interest is the degree to which participants actually engage in dieting behaviours (successfully or otherwise) over the following three months. A longitudinal study is needed to establish this criterion validity. In addition, there is a need to consider the predictive utility of the DIS relative to existing measures of dieting – that is, does the DIS have incremental validity over and above existing scales? This analysis is presented in Study 2. In addition, the psychometric properties of the scale, although strong with females, need to be established for males. As such, the remaining studies were conducted with both males and females, although the male samples in Studies 2 and 3 were too small to be analysed separately. Study 4 has a sufficiently large sample of males to conduct separate analyses and investigate gender differences directly.

## Study 2

The primary goal of Study 2 was to evaluate further the construct validity of the DIS. Specifically, in line with Prediction 2, it was expected that the DIS would strongly predict, at a three-month follow-up, reported dieting behaviours over the past three months. Secondly, two measures of dieting currently in use in the literature were included to establish that the DIS measures, at the very least, a closely related construct. Although there are problems with existing measures of dieting as outlined above, they nevertheless have demonstrated predictive utility. Thus, in line with Prediction 5, the

DIS was expected to show considerable overlap with these measures. Furthermore, we sought to test Prediction 3, that the DIS would have incremental utility in predicting dieting after accounting for variance measured by existing dieting scales. Additional support was also sought for Prediction 1 by establishing the test-retest reliability for the DIS.

### Time 1 Method

**Participants.** The participants were 97 students (33 males) enrolled in a third-year social psychology course at the Australian National University. The study was described as “health behaviour research”. Participants completed the experiment in the laboratory as a course activity and gave their consent for the data to be used for research purposes (no incentives were given). The mean age was 22.26 (range 18-44 years,  $SD = 3.67$ ).

**Measures.** Following the DIS, participants indicated their age and gender.<sup>4</sup> They were also asked to generate a unique code, based on questions such as, “What is the first letter of your mother’s first name?” This code, along with demographic information, was used to match participants’ responses at Time 1 and 2. Finally, participants were asked to provide an email address if they consented to participate in a follow-up study (Time 2). Seventy-six of the participants provided a valid address.

### Time 2 Method

**Participants.** All participants who provided contact information at Time 1 were emailed approximately three months later and invited to participate in a 10-minute

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<sup>4</sup> In addition, participants completed a measure of descriptive and injunctive dieting norms of their gender group and a social identification scale. These variables, including their relationship with the DIS, is analysed in depth in Chapter 8 (Study 9).

online survey follow-up. Participants were offered AUD\$10 for their participation in the Time 2 survey.

Forty-six participants completed the Time 2 survey, a retention rate of 47%. Six responses could not be linked to Time 1 data due to inconsistencies in the self-generated code. These participants were excluded from the analyses that used both time points. Binary logistic regression indicated that retention at Time 2 did not differ by dieting intent at Time 1 (Wald  $F(1,39) < 1$ ). At Time 2, the mean age of participants was 23.30 ( $SD = 4.61$ ), and 33 were female.

### **Measures.**

**Existing dieting scales.** The Eating Attitudes Test is a widely used inventory that assesses disordered eating in a variety of domains (Garner, et al., 1982). The 26-item version of the scale was used in this study, with the Dieting Subscale (comprising 13 items, e.g., “I eat diet foods.”) being of particular interest as an existing measure of the construct. The EAT-26 has been well validated (Ocker, Lam, Jensen, & Zhang, 2007) and has response options of a six-point scale ranging from “Always” to “Never.”

The Restrained Eating Scale (e.g., “Do you give too much time and thought to food?”; Herman & Polivy, 1980) is a 10-item measure with established reliability of its test scores (Allison, et al., 1992; Banasiak, et al., 2000). As discussed in more detail above, the RES was originally developed to measure chronic dieting; however, it is now thought to be a measure of an individual’s tendency toward weight gain and subsequent dieting attempts (Lowe & Butryn, 2007; Lowe & Levine, 2005).

**Dieting status.** The Time 2 survey began with questions regarding participants’ dieting behaviour status over the past three months (since completing the Time 1 survey). Participants were explicitly asked if they had been on a diet in this time: “In the last three months, I have been intentionally trying to lose weight”, and “In the last

three months, I have been on a diet". Both questions had seven-point response scales ranging from "Strongly Disagree" to "Strongly Agree".

**Dieting behaviours.** Specific dieting behaviours were assessed with a scale adapted from French, Perry, Leon, and Fulkerson (1995). Note that this scale provides a descriptive measure of the actual behaviours a participant has engaged in. Participants were asked, "In the past three months, have you often done any of the following in order to lose weight?" with response options of "Yes" and "No". This scale listed 19 methods of weight loss (five were not included due to low relevance to a young Australian population; e.g., liquid diets), ranging from explicitly healthy (e.g., "Increased your fruit and vegetable intake") to explicitly unhealthy (e.g., "Increased the number of cigarettes you smoke"). Order of the items was randomised for each participant.

Participants were then asked to complete the DIS. Finally, demographic information was collected and participants were asked to generate their unique code in the same manner as at Time 1.

### Time 1 Results

**Internal consistency.** The mean of the DIS at Time 1 was 3.90 ( $SD = 1.58$ ). There was no significant difference between men ( $M = 3.74$ ,  $SD = 1.50$ ) and women ( $M = 3.98$ ,  $SD = 1.62$ ) on mean DIS scores ( $F(1,95)=0.51$ ,  $ns.$ ,  $\eta^2 = .01$ ). Cronbach's  $\alpha$  for the entire sample was .93.

### Time 2 Results

**Test-retest reliability.** The mean of the DIS at Time 2 was 4.04 ( $SD = 1.73$ ), which did not differ significantly from Time 1 DIS ( $F(1,43)=1.63$ ,  $ns.$ ,  $\eta^2 = .04$ ). Test-retest reliability using the intra-class correlation coefficient was .78 ( $p < .01$ ) between

Time 1 and 2, which is considered high reliability given the significant time lag (three months). Additional descriptive statistics and correlations are provided in Table 4.

**Convergent validity.** In order to strengthen the evidence for the convergent validity of the DIS, we evaluated its relationship with both the EAT-26 Dieting subscale and the RES. In both cases, the positive correlation was strong and significant, as can be seen in Table 4.

**Predictive utility.**

**Dieting status.** The presence of weight-loss dieting during the intervening three months (dieting status) was calculated by averaging participants' responses to the items, "In the last three months, I have been intentionally trying to lose weight" and "In the last three months, I have been on a diet" ( $\alpha = .76$ ). Overall, participants reported a moderate degree of dieting over the past three months ( $M = 3.38$ ,  $SD = 1.60$ ). DIS scores at Time 1 predicted reported dieting status at Time 2,  $F(1,39) = 14.59$ ,  $p < .01$ ,  $\beta = .52$ ,  $R^2 = .27$ .

**Dieting behaviours.** In order to analyse the specific dieting behaviours predicted by the DIS, the 19 items regarding dieting behaviours were used. Four items were excluded because no one in the sample endorsed them: self-induced vomiting, laxative/diuretic use, use of diet pills, and use of appetite suppressants. The remaining 15 items were averaged to create a scale ( $\alpha = .87$ ). DIS scores at Time 1 strongly predicted dieting behaviours over the intervening three months,  $F(1,39) = 28.72$ ,  $p < .01$ ,  $\beta = .65$ ,  $R^2 = .42$ .

These specific behaviours were then broken down into two subscales of healthy and unhealthy behaviours, as suggested by French et al. (1995). DIS scores at Time 1 significantly predicted unhealthy dieting behaviours (four-item subscale,  $\alpha = .60$ ),  $F(1,39) = 7.14$ ,  $p < .05$ ,  $\beta = .39$ ,  $R^2 = .16$  and, even more strongly, healthy dieting

Table 4

*Study 2: Descriptive Statistics and Correlations with the Dieting Intentions Scale.*

	<i>Mean</i>	<i>SD</i>	<i>Cronbach's <math>\alpha</math></i>	<i>Correlation with DIS</i>	
				<i>Time 1</i>	<i>Time 2</i>
Dieting Intentions Scale (Time 1)	3.90	1.75	.91	-	.78*
Dieting Intentions Scale (Time 2)	4.04	1.73	.95	.78*	-
Eating Attitudes Test-26 –					
Dieting Subscale	4.09	5.14	.73	.31*	.45*
Restrained Eating Scale	11.25	5.67	.80	.53*	.70*

\* $p < .05$  $N = 40$

behaviours (11-item subscale,  $\alpha = .86$ ),  $F(1,39) = 28.59$ ,  $p < .01$ ,  $\beta = .65$ ,  $R^2 = .42$ .

Note that healthy and unhealthy dieting strategies were strongly positively correlated with each other ( $r = .52$ ,  $p < .01$ ).

**Incremental utility.** In order to provide a stringent test for incremental usefulness of the DIS in predicting dieting behaviours, a hierarchical regression was conducted with the 15-item measure of dieting behaviours as the dependent variable. At Step 1, two established scales with predictive utility for dieting were centred and entered as predictors: the RES and the EAT-26 Dieting subscale (both measured at Time 2). At Step 2, the DIS (measured at Time 1; centred) was entered. A correlation matrix suggested that these three scales were substantially overlapping, but not collinear, with associations ranging from .28 - .65 (the largest correlation was between the RES and the EAT-26). This analysis was also repeated for unhealthy and healthy dieting behaviours separately, and all three regression analyses are presented in Table 5.

For dieting behaviours overall, Time 1 DIS made a significant predictive contribution after accounting for Time 2 EAT-26 and RES scores,  $F_{\text{change}}(1,35) = 12.56$ ,  $p < .01$ ). Time 1 DIS also made a unique contribution to predicting healthy dieting behaviours specifically,  $F_{\text{change}}(1,35) = 9.00$ ,  $p < .05$ ). However, Time 1 DIS did not make a unique contribution (over and above the Time 2 EAT-26 and RES) to predicting unhealthy dieting behaviours ( $p > .10$ ).

## Discussion

This study provided evidence for the predictive validity of the DIS. The DIS strongly predicted the degree to which individuals will describe themselves as being on a diet and engaging in specific dieting behaviours over the next three months. In fact, this relationship was very strong, with 42% of the variance in dieting behaviours reported retrospectively at Time 2 explained by Time 1 dieting intentions. This study also demonstrated that the DIS has predictive utility for both healthy and unhealthy dieting



Table 5

*Results of Hierarchical Regression Analysis for Specific Dieting Behaviours.*

Variable	<i>b</i>	<i>SE b</i>	$\beta$	Semi-partial $R^2$
<i>Overall Dieting Behaviour Scale (15 item)</i>				
Step 1				
Restrained Eating Scale (Time 2)	.01	.01	.24	.16
EAT-26 - Dieting Subscale (Time 2)	.02	.01	.37*	.28
Step 2				
Dieting Intentions Scale (Time 1)	.06	.02	.41*	.35
<i>Healthy Dieting Behaviour Scale (11 item)</i>				
Step 1				
Restrained Eating Scale (Time 2)	.01	.01	.17	.12
EAT-26 - Dieting Subscale (Time 2)	.02	.01	.27	.21
Step 2				
Dieting Intentions Scale (Time 1)	.08	.03	.43*	.36
<i>Unhealthy Dieting Behaviour Scale (4 item)</i>				
Step 1				
Restrained Eating Scale (Time 2)	.01	.01	.32	.22
EAT-26 - Dieting Subscale (Time 2)	.01	.01	.36*	.27
Step 2				
Dieting Intentions Scale (Time 1)	.01	.02	.10	.08

\* $p < .05$  $N = 40$ 

Entries are statistics for Step 2 in which all effects and interactions are entered.

EAT-26: Eating Attitudes Test (26 item).

behaviours across the following three months. Although the relationship was stronger for healthy behaviours, this may have been, in part, because some of the more severely unhealthy dieting behaviours (e.g., self-induced vomiting) were not endorsed by any participant in this sample. In addition, this study established that the DIS has good test-retest reliability, with a correlation of .78 between measurements three months apart.

The most important contribution of this study is in demonstrating that the DIS provides predictive utility for behaviours reported three months later, over and above existing dieting scales. This was a particularly conservative test of the value of the DIS, given that the RES and EAT-26 were administered concurrently with the dependent variable, while the DIS was measured three months previously. Note also that neither of the existing scales made a unique contribution to all of these three analyses, and the DIS was the *only* scale that made a unique contribution to predicting healthy dieting behaviours. The DIS did not uniquely predict *unhealthy* dieting behaviours, perhaps because the RES and EAT-26 are specifically designed assess disordered dieting. The DIS, on the other hand, aims to measure a broader range of dieting behaviours (both healthy and unhealthy). Therefore, there is evidence that the DIS provides a robust measure of future dieting behaviours, particularly healthy dieting behaviours, that is not accounted for by existing scales.

A significant limitation of this study was the small sample size, particularly at Time 2. However, despite this limitation, the expected results were obtained.

### Study 3

Study 3 had one core goal. In order to strengthen the case for the DIS having discriminant validity (Prediction 3), trait self-esteem, positive and negative affect, and social desirability were measured. It was expected that the DIS would not be related to these constructs.

## Method

**Participants.** Participants were 171 students (56 males) at the ANU, recruited through on-campus advertising for a “Dieting Intentions Survey”. First-year psychology students comprised the majority of the sample and received course credit for participating; other participants received no incentive. Mean age was 22.70 (range 18–58 years,  $SD = 7.02$ ), and the mean BMI was 22.60 ( $SD = 3.61$ ).

**Measures.** The study was completed online, with scales presented to participants in the order below. The DIS was presented prior to the demographic items.

**Trait self-esteem.** The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) was used to measure stable differences between participants in self-esteem. This 10-item scale is used widely and has been extensively validated across a variety of contexts (Robins, Hendin, & Trzesniewski, 2001). Participants responded to items (e.g., “I feel that I am a person of worth, at least on an equal plane with others”) on a four-point Likert scale from “Strongly Disagree” to “Strongly Agree”.

**Social desirability.** As outlined by King and Bruner (2000), an important component of scale validation is ensuring measurement is not confounded with social desirability. Given that there are strong social norms prescribing weight, shape and eating behaviours, this is a particularly important consideration for the Dieting Intentions Scale. A validated short-form social desirability scale (SDS) was used (Reynolds, 1982; Strahan & Gerbasi, 1972). Participants respond either “True” or “False” to ten items (e.g., “I like to gossip at times”).

**Mood.** Participants’ mood was measured using the Positive And Negative Affect Scale (PANAS; Crawford & Henry, 2004), a 20-item inventory of mood-related adjectives (e.g., “Interested”). Participants are asked the degree to which each emotion currently describes them on a five-point scale, ranging from “Very slightly or not at all” to

“Extremely”. Previous research has established that the scale yields test scores with good validity and reliability, and typically has a two factor structure – positive affect and negative affect subscales (Watson, Clark, & Tellegen, 1988). Order of the items was randomised for each participant.

Finally, after the presentation of the DIS, participants responded to demographic questions regarding their age, gender, height, and weight.

## Results

**Internal consistency.** The internal consistency of the DIS in this sample was .94. The overall mean of the scale was 4.10 ( $SD = 1.67$ ). Female participants, on average, reported stronger dieting intentions ( $M = 4.34$ ,  $SD = 1.65$ ) than male participants ( $M = 3.62$ ,  $SD = 1.61$ ),  $F(1,168) = 7.17$ ,  $p < .01$ ,  $\eta^2 = .04$ .

between the DIS and theoretically associated constructs (such as BMI) are the same regardless of gender. These questions were therefore addressed in Study 4.

**Discriminant validity.** Social desirability, trait self-esteem, and mood were measured to determine their relationship with dieting intentions. Non-significant or weak correlations with these scales would indicate good discriminant validity for the DIS. The correlations are presented in Table 6. There was no significant correlation between the DIS and the SDS, RSE or PANAS-Positive Affect. There was a weak but significant correlation between the DIS and PANAS-Negative Affect ( $r = .15$ ,  $p = .047$ ), such that individuals who were high in dieting intentions were slightly more likely to be experiencing negative mood states.

## Discussion

Study 3 generally provides evidence for the discriminant and convergent validity of the DIS. Specifically, this study revealed no significant relationship between the DIS and trait self-esteem, social desirability or positive affect.

Table 6

*Study 3: Descriptive Statistics and Correlations with Dieting Intentions Scale.*

	Mean	<i>SD</i>	Cronbach's $\alpha$	Correlation with DIS	Significance level ( <i>p</i> )
Social Desirability Scale	5.20	2.03	.54	.00	<i>ns.</i>
Rosenberg Self-Esteem Scale	30.11	4.55	.88	-.11	<i>ns.</i>
PANAS – Positive affect	26.03	8.19	.92	-.05	<i>ns.</i>
PANAS – Negative affect	16.75	6.90	.91	.15	<i>p</i> = .047

*N* = 171

PANAS: Positive and Negative Affect Scale

Although not predicted, the weak relationship between the DIS and negative affect does make sense *post facto*. One possibility is that for participants high in dieting intentions, being asked questions about their weight, eating behaviours, and desire for weight loss precipitated a lower mood. This finding may also reflect the well-established link between eating disorder symptomatology and negative mood (Stice, 2002). The finding of a significant relationship between the DIS and a measure of negative affect does not, therefore, necessarily undermine the discriminant validity of the DIS.

Unlike Study 2, Study 3 found a significant difference between males and females in their endorsement of the DIS. However, neither Study 2 nor 3 had a sufficiently large sample of male participants to properly evaluate the psychometric properties of the DIS in males and ensure that the factor structure and validity in measuring dieting intentions are established for both populations. In addition, it is desirable that the relationship

#### Study 4

The fourth and final study had three goals. Firstly, and most importantly, Study 4 was designed to test whether there were any differences between males and females in: a) their level of dieting intentions, and b) in the relationship of the DIS to other similar constructs (Prediction 6). Secondly, Study 4 had sufficient sample size to conduct a confirmatory factor analysis in a community sample for the one-factor solution established in Study 1 (Prediction 1). Finally, in order to expand on the previously established construct validity, four conceptually related measures were included: overvaluation of eating, weight and shape; the appearance subscale of the Contingencies of Self-Worth scale (Crocker & Knight, 2005); thin-ideal internalisation; and a measure of eating pathology. In accordance with Prediction 5, a positive correlation of at least moderate strength was expected between the DIS and these eating-related constructs.

## Method

**Participants.** There were 290 participants (83 males) recruited online from English-speaking countries using advertising on social network sites and internet forums. No incentives were offered, and the study was described as research on “Self and Health Behaviours”. The mean age was 29.30 (ranging from 17-75 years,  $SD = 13.39$ ) and mean BMI was 24.63 ( $SD = 5.61$ ). The two most common nationalities of participants were Australian (47%) and United States (21%).

**Measures.** Participants completed the scales in the order they are described below, with the DIS presented prior to the Sociocultural Attitudes Towards Appearance Questionnaire.<sup>5</sup>

***Overvaluation of eating, shape, and weight.*** It has been argued that the central cognitive feature of eating disorders is that self-worth is based on eating, weight, and shape to a greater degree than in the normal population (Fairburn, Cooper, & Shafran, 2003). Such transdiagnostic models also emphasise frequent and varied attempts to lose weight (both healthy and unhealthy) as the central behavioural feature of disordered eating (Wade, Bergin, Martin, Gillespie, & Fairburn, 2006). For this reason, we would expect the DIS to be strongly and positively correlated with overvaluation of eating, shape, and weight. In order to measure this construct, six items were used that were adapted from two sources. The first source was from research exploring overvaluation in the eating disorders (e.g., Hrabosky, Masheb, White, & Grilo, 2007). These three items were of the form: “Right now, how much does your (body shape/eating/weight) influence how you feel about yourself as a person?” with response options on a five-point scale ranging from “Not at all” to “A lot”. The other three items were adapted

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<sup>5</sup> Participants were also exposed to an identity salience manipulation prior to the variables described here. The effect of this manipulation is discussed in depth in Chapter 8 (Study 8).



from a scale measuring the importance of eating, shape and weight developed originally for use with adolescents (Ricciardelli & McCabe, 2002). These three items were of the form: "How important is (what you weigh/your body shape/your eating) compared to other things in your life?" with a seven-point response scale ranging from "Extremely unimportant" to "Very important". The average of the z-scores (since the response scales were of different sizes) of these six items was taken as the measure of overvaluation of eating, shape, and weight ( $\alpha = .89$ ).

***Contingencies of self-worth.*** An increasing number of researchers have argued that overall self-esteem, and even domain-specific self-esteem, is less important in predicting mental health and other outcomes than the *contingencies* of self-worth (Crocker & Knight, 2005). That is, individuals are said to differ in the extent to which they predicate their self-worth on their competency in a variety of domains. Currently, we included the three most widely studied contingencies of self-worth: appearance, relationships and competition (Crocker, Luhtanen, Cooper, & Bouvrette, 2003). Each subscale contains five items, with participants responding on a seven-point scale ranging from "Strongly Disagree" to "Strongly Agree". Participants responded first to the relationships subscale (e.g., "I can't respect myself if others don't respect me"), then the appearance subscale (e.g., "When I think I look attractive, I feel good about myself"), and finally the competition subscale (e.g. "Doing better than others gives me a sense of self-respect"). It was predicted that, although men and women would differ in their descriptive level of each contingency (as demonstrated in Crocker, et al., 2003), the relationship between each contingency and the DIS should remain broadly stable for both sub-samples. Only the appearance subscale was expected to correlate with the DIS.

***Internalisation of the thin ideal.*** The Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ; version II, Thompson, 1999) was used to assess

the degree to which participants endorsed the notion that thinness is desirable. We included this measure partly because it has been argued that men are subject to different cultural pressures than women with regards to appearance. Specifically, some research has indicated that men are more likely to endorse a muscularity ideal than a thin ideal (Murnen, Smolak, Mills, & Good, 2003). It might, therefore, be possible that males indicating low dieting intentions may be aiming to gain muscle, rather than being satisfied with their body weight. If this were the case, we would expect a different relationship between thin ideal internalisation and the DIS for men than for women. The subscale specifically measuring internalisation contains 12 items (e.g., "I would like my body to look like the women(men) who appear in TV shows and movies"). The SATAQ is measured on a five-point scale from "Strongly Disagree" to "Strong Agree," and has established reliability and validity of its test scores (Thompson, 1999).

**Eating pathology.** Although many of the constructs previously measured are related to disordered eating, in this study we included the most widely used tool for assessing eating disorder pathology, the Eating Disorder Examination Questionnaire (EDE-Q, Fairburn & Cooper, 1993). These 42 questions (e.g., "Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight?") refer to participants' experiences over the previous 28 days, and the scale has good internal consistency and validity as a diagnostic screening tool and measure of symptom severity (Mond, Hay, Rodgers, Owen, & Beumont, 2004). The EDE-Q was scored according to the recommended protocol and the total score was used as a continuous predictor variable.

**Demographic information.** Finally, participants were asked for demographic information, including gender, age, height, and weight. Participants could choose to provide their height in either centimetres or feet and inches, and to provide their weight

in either kilograms or pounds. Units were converted to the metric system where necessary.

## Results

**Descriptive statistics and internal consistency.** In both male and female samples, the full range of the DIS was utilised, with individuals scoring as low as 1 and as high as 7. There was a small but significant difference in the mean DIS scores between men ( $M = 4.06$ ,  $SD = 1.56$ ) and women ( $M = 4.50$ ,  $SD = 1.65$ ), with women indicating a stronger intention to diet overall,  $F(1, 288) = 4.16$ ,  $p < .05$ ,  $\eta^2 = .02$ . The variance was very similar across genders and neither population showed evidence of skew or kurtosis. Cronbach's  $\alpha$  was .92, for men and women considered both separately and together.

**Confirmatory factor analysis.** Study 4 utilised a confirmatory factor analytic (CFA) approach to verify the one-factor solution in a large community sample. A maximum likelihood approximation was used in AMOS (Arbuckle & Wothke, 1999). This approach is not compatible with missing data. In this sample, missing data were very low overall, and so participants with more than three missing responses for any scale were excluded from the dataset (approximately 15 participants who completed the study). Missing data for remaining participants ( $< .01\%$ ,  $N = 290$ ) was imputed using the variable mean.

Specified parameters were the coefficient weights for error terms (set to 1) and the variance of the DIS. These specifications are consistent with recommendations for CFA (Hurley et al., 1997). Modification indices suggested the need for the error terms of items 1 and 2, and items 4 and 5, to covary. This reflects the strong conceptual overlap of these items, therefore the covariation terms were included in the model (Bollen & Lennox, 1991). The final CFA model was then tested again across Studies 2-4 for a total of 558 cases (172 males; Time 1 DIS was used from Study 2), providing

further evidence for the robust one-factor structure of the scale. Table 7 presents the fit statistics for the CFAs for Study 4 as well as the expanded sample. The model is presented in Figure 2.

A variety of different indices are typically used to assess the fit for a CFA model. The non-significance of  $\chi^2$  and  $\chi^2/df$  is indicative of good model fit. This was the case for a one-factor solution of DIS in the current sample ( $\chi^2(12) = 1.99, ns$ ). RMSEA values below .08 indicate an adequate fit for the data. The current model had an RMSEA value of .058. The Comparative Fit Index (CFI; Bentler, 1990) provides a and the non-centrality of the models. Variants on the CFI include the Goodness of Fit Index (GFI) and the Normed Fit Index (NFI). All of these indices range from zero to one with values above .90 considered acceptable model fit. The current model had a CFI of .99, GFI of .98 and NFI of .99, providing substantial evidence that a one-factor solution is a good fit for the data.

To compare the factor structure for males and females, pairwise parameter comparisons were conducted to assess whether the estimated factor weightings or covariance of error terms varied between males and females. No comparison was significant, indicating that none of estimated parameters differed between males and females. We also compared males and females by performing a nested model comparison between a model that allowed parameters to differ between men and women to a constrained model where they were required to be the same. These models did not significantly differ ( $\chi^2(7) = 9.66, p = .21$ ).

**Construct validity for male and female participants.** Data were analysed separately for males and females in order to establish that the association of other variables with the DIS followed a similar pattern. As can be seen in Table 8, the

Table 7

*Fit Indices of the One-Factor Model of the Dieting Intentions Scale*

Model	<i>df</i>	$\chi^2/df$	RMSEA	CFI	GFI	NFI
Study 4 ( <i>N</i> =290)	12	1.99	.058	.99	.98	.99
Studies 2-4 ( <i>N</i> =558)	12	2.36	.049	.99	.99	.99

RMSEA = root mean square error of approximation.

CFI = Comparative Fit Index

GFI = Goodness-of-Fit Index

NFI = Normed Fit Index

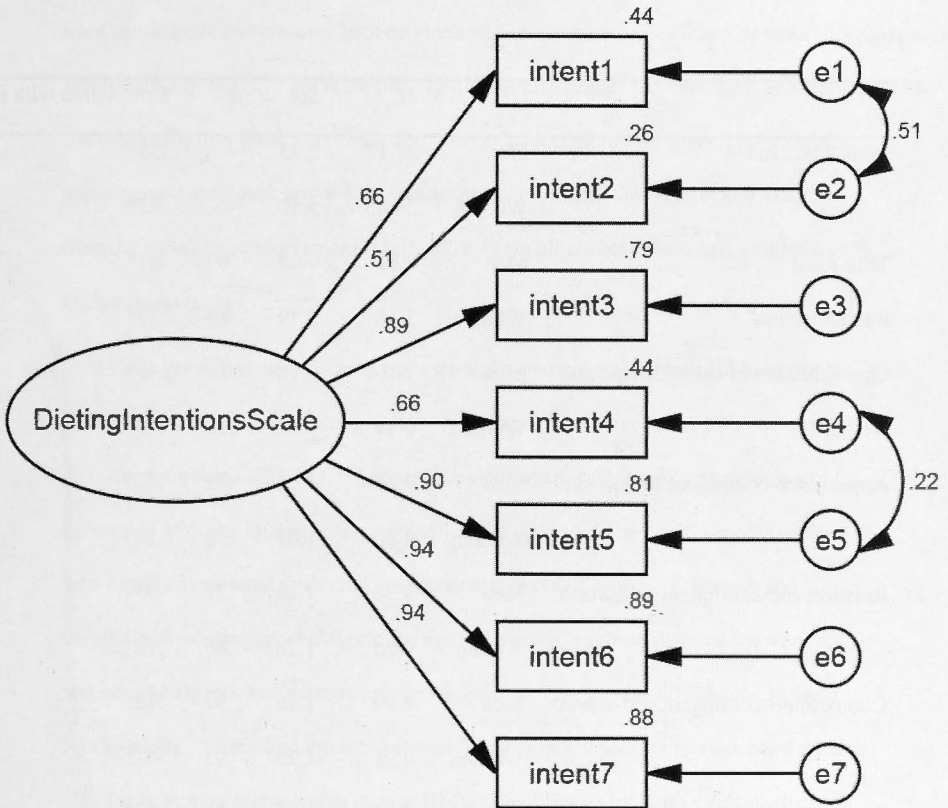


Figure 2. Final model of the Dieting Intentions Scale in Studies 2-4 for males and females combined (N=558). Factor weights are standardised.

Table 8

*Means, Standard Deviations, Internal Consistency of Variables in Study 4 and their Relationship with the Dieting Intentions Scale Analysed Separately for Males and Females.*

		<i>M</i>	<i>SD</i>	$\alpha$	Correlation with DIS
Body Mass Index	Men	25.17	5.93	-	.33*
	Women	24.45	5.50	-	.33*
Thin-ideal internalisation <sup>a</sup>	Men	2.82	0.69	.89	.31*
	Women	3.18	0.79	.89	.28*
Overvaluation of eating, shape and weight <sup>a</sup>	Men	-0.24	0.76	.87	.45*
	Women	0.94	0.82	.90	.47*
Appearance-contingent self-worth <sup>a</sup>	Men	4.21	1.07	.79	.32*
	Women	4.86	1.04	.78	.26*
Relationship-contingent self-worth <sup>a</sup>	Men	3.76	1.13	.77	.03
	Women	4.25	1.26	.86	.12
Competition-contingent self-worth	Men	4.99	1.16	.92	.16
	Women	4.91	1.28	.93	-.05
Eating Disorder Examination	Men	0.87	0.94	.91	.50*
Questionnaire - Total <sup>a</sup>	Women	1.86	1.44	.90	.56*

$p < .01$ .

$N = 83$  males, 207 females

a. The means of these variables were significantly higher for women compared to men,  $p < .05$ .



measure of fit that compares the hypothesised model to the independence model in terms of the discrepancy between the models and observed data, the degrees of freedom, correlations for men and women are strikingly similar. Fisher's  $z$  transformation was used to compare correlations between men and women and no differences were significant at  $p = .05$ . This is despite significant differences between men and women in the means for thin ideal internalisation, overvaluation of eating, shape and weight, appearance-contingent self-worth, relationship-contingent self-worth, and eating disorder symptom endorsement on the EDE-Q (in all cases women had a significantly higher mean score).

As predicted, correlations were strongly positive and significant between the DIS and overvaluation of eating weight and shape, and between the DIS and eating disorder symptoms (EDE-Q). Appearance-contingent self-worth was moderately correlated with the DIS in both samples. There appears to be a trend such that the DIS was weakly associated with relationship-contingent self-worth for women and competition-contingent self-worth for men. However, as these differences were not statistically significant, there is only weak evidence for gender differences in these relationships. Thin-ideal internalisation was moderately positively associated with the DIS for both men and women, as was BMI. Therefore, there is no evidence that the DIS has different psychometric properties or that it measures a different construct among men compared to women.

## Discussion

Study 4 has provided strong evidence for the convergent validity and factor structure of the DIS in both men and women in a community sample. All the analyses suggest that, although men and women differ in their degree of dieting intentions and related constructs, the internal consistency and validity of the DIS as a measure of dieting intentions remains strong when each population is analysed independently.

Furthermore, Study 4 demonstrated that there is a strong relationship between the DIS and a diagnostic measure of eating pathology.

A common practical difficulty in psychological research, and particularly research about dieting and health, is in recruiting sufficiently large samples of male participants. As a result, much of the research into eating behaviour has been conducted solely with women. Similarly, many psychometric instruments have adequate validation evidence only among female samples (van Strien, Herman, Engels, Larsen, & van Leeuwe, 2007). It is, therefore, a strength of this study that we were able to recruit 83 male participants in order to confirm that the psychometric properties and associated constructs are very similar for males and females.

### **General Discussion**

Across four studies, it has been demonstrated that the Dieting Intentions Scale is a reliable and valid measure of individuals' intentions to engage in dieting behaviours. The scale has high internal consistency (above .91 in all samples), strong test-retest reliability (.78 at three months), and a stable one-factor structure. The scale is strongly associated with theoretically-related constructs, such as disordered eating, body dissatisfaction, appearance esteem, dietary restraint, and overvaluation of eating, shape, and weight. The DIS is able to predict variation in future dieting behaviour that is not accounted for by existing dieting scales. It is independent of theoretically-distinct constructs, such as social desirability, self-esteem, and positive affect. Its psychometric properties are comparable among women and men. Perhaps most importantly, the Dieting Intentions Scale has demonstrated predictive validity, strongly predicting self-reported dieting status and dieting behaviours over the following three months as well as the likelihood of seeking out weight-loss information.

### **When Should the Dieting Intentions Scale Be Used?**

The DIS provides a reliable and valid measure of a person's *intention to diet in the immediate future*. We have confirmed that this translates into actual dieting behaviours and attempts to find out more about weight-loss strategies. It is these attempts to lose weight, the literature would suggest (Presnell, et al., 2008; Stice, et al., 2006), that predict long-term weight gain and the development of eating disorders. Therefore, the scale does have utility in indicating subclinical, but nevertheless concerning, disordered eating behaviours.

One of the major strengths of the DIS is its sensitivity in predicting the likelihood of future dieting behaviour. Although measuring eating behaviour is of great importance to both researchers and clinicians, objective measures pose significant practical problems. The DIS resolves many of these problems through using a self-report format, while maintaining much of the validity of a behavioural measure due to its demonstrated strong relationship with future dieting behaviours.

A further strength of the DIS, compared to existing measures of dieting, is its future orientation. That is, rather than indicating individual differences or pathology, the DIS provides a sensitive indicator of the likelihood of dieting behaviours. It may, therefore, be particularly valuable as an outcome variable in research aiming to predict or alter future dieting behaviour, such as trailing positive body image interventions, as well as basic research into eating behaviour.

### **When Should the Dieting Intentions Scale Not Be Used?**

The development of the DIS has not resolved the ongoing debate regarding the reason for a weak relationship between dieting attempts and successful weight loss. The DIS is designed to predict naturalistic dieting behaviour – which, most often, is an

unsuccessful strategy for long-term weight loss (Presnell, et al., 2008). Therefore, the scale should not be used to assess likelihood of weight loss.

Furthermore, the DIS does not distinguish between healthy and unhealthy dieting behaviours; indeed, it has been shown to predict both. This is not an oversight; on the contrary, there is evidence that lay people do not make the distinction between the two types of dieting (Povey, Conner, Sparks, James, & Shepherd, 1998) and, consequently, reported unhealthy and healthy dieting behaviours are highly correlated ( $r = .52$  in Study 2). It would, therefore, be inappropriate to use the DIS as an indicator of either solely healthy dieting (e.g., desirable to maximise in an obesity treatment group) or solely unhealthy dieting (e.g., desirable to minimise in an anorexia nervosa treatment group). Rather, the DIS might be used to assess an individual's current likelihood of engaging in the spectrum of dieting behaviours. It would then be a clinical task to increase the frequency of healthy behaviours in an individual's dieting repertoire.

**Limitations and future directions.** Across the four studies presented here, the DIS has received ample support for its reliability and validity in predicting future dieting behaviour. Nevertheless, questions remain about the scale. It has not been validated in an eating disordered, obese or non-Western sample, and the sample used in these studies was relatively young. It would also be desirable to know the relationship between the DIS and objective indicators of food intake, as well as the relationship with weight over time. Despite variation between the studies in sample, recruitment strategy, method, and order of administration, there are no appreciable differences between studies in the descriptive properties of the DIS. On the one hand, this speaks to the robustness and reliability of the scale. On the other hand, it remains for future research to verify the claim that the DIS is sensitive to contextual change.

**Summary.** In this chapter, the Dieting Intentions Scale, which is future-oriented and short in length, is presented as an alternative to existing measures of

dieting. Four studies have demonstrated that the scale has good internal consistency and stability over time, as well as a strong one-factor solution. Validity of the DIS as a measure of dieting intentions has been established through measuring the association of the DIS with concepts theorised to be similar (e.g., body dissatisfaction) and dissimilar (e.g., self-esteem) to dieting, as well as through demonstrating its predictive utility for behaviour. Overall, it is believed that the Dieting Intentions Scale fills a gap in the measurement of eating behaviour, and thus has the potential to advance this area of research.

## CHAPTER SIX

### SHARED GROUP MEMBERSHIP ENHANCES THE EFFECTIVENESS OF HEALTH PROMOTION MESSAGES

#### Abstract

Despite significant investment from health promotion campaigners, obesity and disordered eating continue to increase in developed countries. This chapter adds to the existing literature by testing whether a match between the social identity of the source and the target enhances the effective promotion of healthy eating behaviours. In Study 5, an experimental design assigned 127 female participants to view one of five health promotion videos. Health promotion videos advocated either a pro-healthy weight or pro-thinness message (validated in a pilot study) and came from either a female (in-group) or male (out-group) presenter. A control message was also included. Dependent variables were dieting intentions, health behavioural intentions and a binary behavioural measure of whether the participant clicked a link to find out more about healthy eating. Consistent with predictions, the results showed that the female participants were most influenced by the female presenter (i.e., the in-group member). After watching a pro-healthy eating message, 41% of participants clicked on the link to find out more if the speaker was female, compared to only 8% when the speaker was male. We conclude that health promotion messages are more effective when there is a match between the perceiver's salient social identity and the source's group membership.

## Literature Review

Western nations are experiencing an epidemic of disordered eating and obesity that is historically unprecedented (OECD, 2005; Hay, Mond, Buttner, & Darby, 2008). Although this societal shift remains poorly understood, it has not gone unnoticed by governments and public health officials. Interventions as diverse as a tax on dietary fat (in Denmark; The Australian, 2011), cash incentives for weight loss (in the United Kingdom; The Independent, 2008) and banning “too skinny” models from the catwalks (in Spain; The Daily Mail, 2008) have been introduced; however, the dominant approach has been health promotion campaigning. Such messages typically have a broad audience and are focused on the provision of information. For example, they state that obesity increases diabetes risk (Children's Healthcare of Atlanta Inc., 2011) or that dangerous dieting increases osteoporosis risk (Caring Online, 2001). However, despite the reach and frequency of such health promotion interventions, they appear to have had limited success, with rates of obesity and disordered eating continuing to increase across the world (Currin, Schmidt, Treasure, & Jick, 2005; Wang & Lobstein, 2006).

A key barrier to effectively combating disordered eating and obesity at a public health level has been a limited uptake of the science of social influence. When examining examples of health promotion messages, it is apparent that they typically depart in many ways from modern social-psychological theories of how social influence can be enhanced. For example, messages are often negatively-framed, when social psychologists know that positively-framed messages are typically more effective (O'Keefe & Jensen, 2007). Messages also often fail to suggest specific behaviours, yet evidence suggests that specifying what action should be taken is more effective (Schneider, 2006). In this paper, we explore one particular dimension of social influence that has rarely been utilised in health promotion campaigning: that of *shared group membership*.



## The Social Identity Model of Social Influence

The social identity approach (Tajfel & Turner, 1986; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) elevates psychological group membership to a key predictor of successful social influence. Within this framework, when a particular social identity (e.g., gender) is salient, group members become motivated to reduce discrepancies between the group and themselves (Turner, 1991). Thus, conformity and social influence will emerge in an attempt to foster a *shared understanding of reality* with in-group members. It follows that an individual's behaviour will be most influenced by those who are perceived to be fellow in-group members. Note that the social identity approach goes beyond classic notions of norm conformity (Sherif, 1936) or objective similarity between the source and target (Kreuter & McClure, 2004), by emphasising the importance of the target's *perception* of shared group membership. This is supported in a study, for example, by Mackie, Worth and Asuncion (1990), who demonstrated that messages from an in-group source have markedly more influence over group members' attitudes than those from an out-group source (see also McGarty, Haslam, Hutchinson, & Turner, 1994). Mackie et al. (1990) also showed that group members process messages more *deeply* when these messages come from an in-group source. Subsequently, a large body of research has supported the social identity approach hypothesis that social influence emerges primarily from in-group members. This has been observed in such diverse domains as judgments about physical reality (Abrams, et al., 1990), the meaning of language (Oldmeadow, Platow, Foddy, & Anderson, 2003), aesthetic judgments (Platow, Mills, & Morrison, 2000), as well as experiences of stress (Haslam, et al., 2004) and pain (Platow et al., 2007).

Health promotion campaigns show little evidence of uptake of the social identity principles of social influence, specifically, the importance of salient shared group membership. Such messages rarely make use of an in-group source or appeal to

common identity. More often, such messages avoid singling out any one social group and the source is typically a vaguely specified expert, often implicitly assumed to be “the government.” A recent American campaign, for example, featured sad-looking overweight children, with slogans such as “Warning: Fat kids become fat adults” and “Warning: Chubby kids may not outlive their parents” (Children's Healthcare of Atlanta Inc, 2011). The absence of social identity-informed health promotion efforts is perhaps, in part, because seminal studies supporting the principles of the social identity approach were conducted in fields quite disparate from health. The theory's relevance to health-promotion campaigning has not been made directly apparent. It is therefore essential that the theoretical and conceptual applicability of the social identity model of social influence to health is demonstrated.

### **Social Identity and Health Behaviours**

The social identity approach has been a dominant model for many decades in analysing processes such as prejudice, leadership and collective action (Brown, 2000). However, it is only in the last decade that social identity theorists have begun to turn their attention to the health domain. Given that health has not traditionally been a topic of study by social psychologists, this delay is perhaps understandable. Nevertheless, the social identity approach to health behaviours has opened up exciting avenues of enquiry, offering new insights into both the conceptualisation of health problems and intervention and prevention efforts.

Several examples may demonstrate the value of a social identity approach to health. Perception of health symptoms is dependent upon salient identity – for instance, older persons report experiencing greater hearing loss and associated impairment when their older person identity is made salient (St Claire & He, 2009). In the domain of eating, Oyserman et al. (2007), found that members of ethnic minorities in the United States are more motivated to eat unhealthy foods when they perceive these behaviours

to be consistent with their ethnic group's social norms. Research has also found that a person's desire to engage in health behaviours such as reducing salt or alcohol intake is dependent upon the congruency between such behaviours and their currently salient identity (e.g., university student vs. British national, Tarrant & Butler, 2011). Looking at social influence specifically, Uskul and Oyserman (2009) demonstrated that health promotion messages are more successful when framed in a way that is consistent with cultural identity. However, little health-behaviour research has manipulated source group membership in order to test directly the social identity analysis of social influence. The only study we could locate that examined this question in the context of persuasive communication (Balaam & Haslam, 1998) did *not* find a moderating effect of source on influence. These results, however, are difficult to interpret due to methodological issues, including a small sample size and the use of purely attitudinal (in contrast to behavioural) dependent variables.

The current research thus sought to extend the previous theoretical and empirical work by measuring influence on eating-related behaviours and behavioural intentions as a function of the relationship between the source and the perceiver. We aimed to test the prediction, derived from the social identity approach, that a persuasive message about eating and weight will be more influential when it comes from a source who shares a valued group membership with the message recipient than when it comes from any other source. Specifically, participants were presented with either a pro-healthy weight message or a pro-thinness message, both of which were expected to be more persuasive when the source was an in-group member, rather than an out-group member. In this case, female participants were used, and the message source was either female (in-group) or male (out-group). Female gender identity was chosen as the category of interest for two reasons. Firstly, being a woman is a strong risk factor for body dissatisfaction (Shea & Pritchard, 2007) and disordered eating (Mensinger & Bonifazi,

2007), indicating that women are a high risk group warranting further research attention. Secondly, there is a “common sense” belief among both lay people and marketers, that women attend to their appearance (including their weight) primarily to enhance their sexual attractiveness to men (e.g., Abed, 1998; see alternatively Stuart & Donaghue, 2012). Therefore, the current research design allowed us to test this common-sense “prediction” in competition with the prediction derived from the social identity approach, that women would be more influenced by another woman, rather than a man, in regards to eating and weight.

### **Pilot Study**

The health promotion messages were intended to be identical in all ways except the content of the message. However, weight, and particularly, thinness, are emotive and sensitive topics for women (Stice, Maxfield, & Wells, 2003). As such, it is plausible that women will find a pro-thinness message to be less interesting or persuasive than a pro-healthy weight message. On the other hand, previous researchers have argued that thinness is normative and endorsed for women (Wiseman, et al., 1992). Therefore it is possible that a speaker advocating a pro-thinness message may be perceived as more prototypical (i.e., representative of the in-group) than a speaker advocating a pro-healthy weight message. Either of these effects would undermine the usefulness of the influence manipulation, as more prototypical in-group members are more likely to be influential (Knippenberg & Wilke, 1992). For this reason, prior to testing the social identity model of influence in the main experiment, it was important to verify the equivalence of the health-promotion video content on dimensions of participant engagement and perceived prototypicality of the speaker.

The pilot study therefore had two goals. The first and primary goal was to design and verify a persuasive influence attempt in the form of two health promotion messages that were identical in peripheral characteristics, including perceived prototypicality of

the speaker and participant engagement with the content. The secondary goal was to confirm that the health promotion messages influenced participants' dieting intentions in the expected direction. This would indicate both that the messages were sufficiently persuasive for use as a social influence attempt, and that the Dieting Intentions Scale (DIS) was a malleable indicator of future dieting behaviour. That is, it was predicted that:

- 1) there would be no significant difference between conditions in participants' ratings of the target's prototypicality or participants' engagement with the content.
- 2) the messages will influence participants' dieting intentions, such that a pro-healthy weight message will lead to lower dieting intentions than a pro-thinness message.

## Method

Participants were randomly assigned to view either a pro-healthy weight or a pro-thinness message. Seventy-seven Australian females who did not have clinically severe disordered eating participated in the online pilot study.<sup>6</sup> The sample ranged in age from 18 to 66 ( $M=25.55$ ;  $SD=13.47$ ) and had an average Body Mass Index (BMI) of 23.74 ( $SD=4.67$ ).

**Health screening questionnaire.** Prior to beginning the pilot proper, participants completed a 13-item forced-choice health questionnaire, the goal of which was to screen out participants with clinically severe eating disorder features (for ethical reasons, it was important to prevent such participants from viewing the pro-thinness message). Eleven of the items were distractor health questions (e.g., "Are you a

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<sup>6</sup> An additional 18 participants who completed the study were excluded as they indicated a nationality other than Australian. Only Australian participants were used in order to match the nationality of the speaker in videos to our participants.

smoker?") in order to prevent eating, shape and weight from becoming salient prior to the influence attempt. Two screening items from the Patient Health Questionnaire (PHQ, Spitzer, Kroenke, Williams, & Group, 1999) were embedded within the general questionnaire: "Do you often feel that you can't control what or how much you eat?" and "Do you often eat, within any two-hour period, what most people would regard as an unusually large amount of food?" Participants who answered "Yes" to both questions were directed to the full PHQ eating disorder screening tool, which is based on the diagnostic criteria for bulimia nervosa and binge eating disorder (American Psychiatric Association, 2000). Participants who endorsed at least three of the items in the screening tool were excluded from the study. Participants were asked for demographic information at this stage, including height and weight. Any participants whose self-reported height and weight resulted in a body mass index ( $BMI = kg/m^2$ ) of less than 17.5 were also screened out of the study due to possible anorexia nervosa. Approximately 14% of participants recruited did not complete the study due to a suspected eating disorder (i.e., additional to the 77 participants who completed the study). These women were screened into a different experiment (see Chapter 9) and received debriefing information that encouraged them to seek treatment.

**Social identification.** Continuing participants then completed an 11-item social-identity questionnaire adapted from Leach et al. (2008, three items were removed from the 14-item scale due to poor fit with the social category of women). Participants responded to items such as, "I am pleased to be a woman" on a seven-point scale, anchored with "Strongly Disagree" to "Strongly Agree." The identification scale acted as a salience manipulation for participants' female identity.

**Stimulus videos.** The purpose of the research was described as an investigation of how women understand health media. Toward this end, the videos had a high production value and participants were told that they had been developed by a

government research institute.<sup>7</sup> The messages featured a female speaker of approximately 25 years of age who was said to be an expert from this institute (Dr. McDonald, who wore a white laboratory coat). Note also that because the speaker was Australian, we limited our sample to Australian participants in order to avoid making national identity salient.

The content of the messages was derived from a number of sources, including nutritional science, women's magazines and previous research (in particular, Balaam & Haslam, 1998). In keeping with the evidence that obesity and eating disorders are related problems (Neumark-Sztainer, 2003), the pro-healthy weight message in this experiment was designed to provide a healthy eating message for a general audience. It emphasised the dangers of being underweight, and encouraged healthy weight-maintenance behaviours such as increased fruit and vegetable intake and regular exercise. It included statements such as, "Women who do not attempt to control their weight tend to be happier, healthier and more successful than those who strive to be thin," and "...there is no need to worry about the caloric content of food, and our only concern should be eating enough healthy food." Visual images were predominantly healthy weight people. The pro-thinness message emphasised the dangers of being overweight, and encouraged weight loss strategies such as counting calories and weight monitoring. Examples of the content include: "Women who keep their weight low tend to be happier, healthier and more successful than those who are overweight," and "Most of us need to reduce our food intake and calorie counting is a good way of ensuring we do this." Visual images were predominately of underweight people. In both conditions,

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<sup>7</sup> The speaker was introduced as a doctor from the Australian Institute of Women's Health. This institution is fictional, although it was intended to be sufficiently similar to existing and respected institutions such as the Australian Institute for Health and Welfare so as not to arouse suspicion among participants. No participant questioned the veracity of the Institute.



the speaker drew upon bogus scientific evidence to argue the benefits of dieting or not dieting. Importantly, although both videos were polarized and misleading messages, the pro-thinness videos encouraged behaviours that are known to be associated with *unhealthy* dieting (e.g. calorie counting and daily weighing), whereas the pro-healthy weight video only advocated behaviours that are known to be associated with healthy eating and weight management (e.g. increased fruit and vegetable intake). Both messages were of approximately seven minutes duration.

**Prototypicality of speaker.** Perceived prototypicality of the speaker was measured using two items, adapted from Hogg et al. (1998): “I thought Dr McDonald was representative of people like me” and “I thought I had a lot in common with Dr McDonald”. Response options were a seven-point scale ranging from “Strongly Disagree” to “Strongly Agree”.

**Engagement with message.** Participant engagement with the speaker was measured using two items: “I found watching the recording engaging” and “I found watching the recording interesting”. Response options were a seven-point scale ranging from “Strongly Disagree” to “Strongly Agree”.

**Manipulation checks.** Two items were used to check that participants had comprehended the influence attempt: “Dr McDonald emphasised that being overweight has negative health consequences” and “Dr McDonald emphasised that being underweight has negative health consequences”. Response options were “True” and “False”.

**Dieting intentions.** The key dependent variable (and measure of influence) in the pilot was dieting intentions, measured using the Dieting Intentions Scale.

## Results

Participants did not differ between conditions on BMI ( $t(75)=-.26$ , *ns.*), age ( $t(75)=-.41$ , *ns.*), or level of social identification as female ( $t(75)=-.41$ , *ns.*). The social identification scale ( $\alpha=.87$ ) had a mean of 5.27 ( $SD=0.77$ ), which was significantly above the midpoint of 4 ( $t(76)=14.55$ ,  $p<.01$ ); this indicates that, on average, the sample strongly identified as female. Missing data among participants who completed the study was very low overall ( $<.01\%$ ), and so these values were imputed with the variable mean.

Binary logistic regression analyses confirmed that participants were more likely to think that Dr McDonald had emphasised the consequences of being overweight in the pro-healthy weight condition (Wald  $F(1,75)=16.18$ ,  $p<.01$ ) and had emphasised the consequences of being underweight in the pro-thinness condition (Wald  $F(1,75)=19.60$ ,  $p<.01$ ).

The two items measuring engagement with the message were correlated at .83. Therefore a mean of these items was taken. Overall, participants indicated moderate engagement with the message ( $M=4.30$ ,  $SD=1.51$ ). There were no significant differences between conditions in participants' engagement with the message ( $t(75)=-.63$ , *ns.*). This provided partial support for the first prediction.

The two items measuring prototypicality were correlated at .72. Therefore a mean of these items was used as a global measure of prototypicality. Overall, the speaker was rated as moderately prototypical on the seven-point scale ( $M=3.53$ ,  $SD=1.39$ ). A t-test indicated no significant differences between conditions in ratings of the speaker's prototypicality ( $t(75)=-1.19$ , *ns.*) This provided further support for the first prediction.

In accordance with the second prediction, a  $t$ -test confirmed a significant difference in dieting intentions between the two conditions,  $t(75)=2.53, p<.05$ . Participants had stronger intentions to diet after viewing a pro-thinness video ( $M=4.27, SE=0.24$ ) than after viewing a pro-healthy weight video ( $M=3.35, SE=0.28$ ). In four other samples (all collected from broadly the same population), the DIS had an average ranging from 3.98 to 4.50 for female participants (see Chapter 5). We can therefore tentatively state that it was the pro-healthy weight video that reduced dieting intentions, while the pro-thinness video had little impact.

## Discussion

Both of the predictions of, the pilot study were confirmed. The influence attempts (in the form of health promotion videos) did not differ between conditions in ratings of participant engagement or speaker prototypicality. The messages were also persuasive in shaping participant dieting intentions. As an aside, this pilot also demonstrates that the Dieting Intentions Scale is amenable to change when an in-group member delivers a persuasive message regarding eating and weight.

The pilot study has ruled out several potential confounds regarding the health promotion videos. Although this study has confirmed that women are influenced in their dieting intentions by a health promotion message from an in-group member, this does not yet provide evidence for the social identity analysis of social influence. Specifically, it remains to be demonstrated that the influence of such messages is *limited* to in-group members. The main experiment provides this test through the addition of two kinds of comparisons in which social influence is *not* expected. That is, messages were added in which the speaker was expected to be perceived as an out-group member by participants (thereby reducing social influence) and a control condition.

## Study 5

The experiment added an additional three conditions to the pilot. These were two videos identical in their content to the pro-healthy weight and pro-thinness conditions, except with a male speaker (i.e., the out-group). The fifth condition was a control, in which the health message was unrelated to eating or weight (establishing a “baseline” for the dependent variables). Thus the experiment had a 2 (message content: pro healthy-weight/pro-thinness) by 2 (message source: in-group/out-group) plus a control design.

Two additional dependent variables were also added. As discussed in Chapter 5, the DIS is not designed to distinguish between healthy and unhealthy dieting. However, the content of the messages do make this distinction, and we therefore added two dependent variables designed to measure healthy-eating behavioural intentions and interest in engaging in healthy eating (discussed further below).

We predicted a two-way interaction between message source and message content. Specifically, female participants were expected to report greater healthy-eating behavioural intentions and lower dieting intentions following a pro-healthy weight message presented by a woman (i.e., in-group member) than a pro-thinness message presented by a woman; no influence should occur with a message presented by a man (i.e., an out-group member).

## Method

**Participants and design.** One-hundred and thirty Australian women who were identified as *not* having clinically significant levels of eating disorder symptomatology were each randomly assigned to one condition of a 2 (message content: pro-healthy weight / pro-thinness) by 2 (source: in-group / out-group) plus control between-participants factorial design. Participants were recruited through advertising in online

forums and networks, as well as on-campus advertising. First year psychology students were offered course credit for their participation and comprised approximately 40% of the sample. Participants ranged from 18 - 65 years in age, with an average age of 27.88 ( $SD = 12.64$ ). Eighty-two per cent of the sample described their ethnicity as Anglo-Australian, and 93% of the sample spoke English as a first language.

### **Materials and procedure.**

***Health screening questionnaire.*** In a manner identical to the pilot study, participants were screened for clinically severe disordered eating using items from the PHQ. Approximately 14% of participants recruited did not complete the study due to a suspected eating disorder (additional to the 130 participants who completed the study).

***Social identification.*** Continuing participants completed a social-identity questionnaire for the female category (Leach, et al., 2008), identical to the pilot. This acted as a salience manipulation for participants' female identity.

***Stimulus videos.*** Participants watched one of five videos. In addition to the two videos developed for the pilot study, we included two conditions in which participants watched a video that was identical in content to the pilot videos other than that the speaker was male. The male and female speakers were matched on age, ethnicity and acting experience, and both wore glasses and a lab coat. This aimed to minimise the possibility of alternative explanations for different levels of influence by source.

In the control condition, participants viewed a health-promotion video of equivalent length, however, it contained an interview with a male doctor discussing strategies for quitting smoking. As only seven per cent of our sample indicated that they were smokers, this clip was on an irrelevant topic for the majority of participants.

**Manipulation check.** Immediately following the stimulus video, there was an open-ended question asking about the key message in the video. Participants' responses were used to assess understanding of the communications.

**Dependent variables.** In addition to the Dieting Intentions Scale (validated in Chapter 5 and the Pilot), three intention items were included to measure healthy weight-management strategies that were explicitly promoted in the pro-healthy weight message. These were adapted from the Theory of Planned Behaviour literature (Armitage & Conner, 1999; Åstrosn & Rise, 2001) and read: "I intend to eat more healthy foods," "I intend to exercise more often" and "I do not intend to change the way I eat or exercise" (reverse scored). These were measured on seven-point scales from "Strongly Agree" to "Strongly Disagree". These three items had a reliability of .68. Factor analysis with a varimax rotation was conducted for these three items as well as the DIS, and suggested that health behavioural intentions formed a distinct construct from dieting intentions, with a two factor solution explaining 66.50 per cent of the variance.

Finally, upon completion of study, participants were presented with a blank screen with a pictorial link to a government-initiative healthy food website that they could explore at their leisure. Participants who clicked this link demonstrated an interest in learning more about healthy eating and thus this served as a proxy measure of healthy-eating related behaviour.

## Results

Missing data were confined to three participants, who were excluded. One-hundred and twenty-seven participants were thus used in the analyses. Participants did not differ significantly across conditions on BMI ( $M=24.26$ ,  $SD=5.32$ ), age ( $M=27.63$ ,  $SD=12.52$ ) or level of social identification as female (all  $ps>.10$ ). 12.5% of participants were obese and 17.3% were overweight, which is similar to national averages (Australian Bureau of Statistics, 2007). The social identification scale ( $\alpha=.86$ ) had a

mean of 5.39 ( $SD=0.81$ ), which was significantly above the midpoint of 4 ( $t(126)=19.16, p<.01$ ); this indicates that, on average, the sample strongly identified as female.

### Manipulation Check

Participants were also asked to summarize their understanding of the video in 1-2 sentences. Inspection of these passages indicated that more than 95% of the sample was able to articulate the core message of the video (e.g., "Stop worrying about your weight, just be healthy" for the pro-healthy weight video).

**Evaluation of the prediction.** The prediction was tested using ANOVAs and binary logistic regression analysis, with message content and source as well as their interaction entered as predictors (the control group was excluded from these analyses). Follow-up analyses in which condition was treated as a five-level categorical predictor allowed planned comparisons to the control condition.

**Intention to diet.** The main effect for message content was significant ( $F(1,101)=9.22, p<.01, \eta^2=.08$ ). Participants intended to diet more after watching the pro-thinness videos ( $M=4.36, SD=1.27$ ) than after the pro-healthy weight videos ( $M=3.53, SD=1.53$ ). The main effect of source and the hypothesized message content by source interaction were *not* significant ( $ps>.10$ ).

This analysis was repeated with condition entered as the only predictor (with five levels) in order to conduct simple comparisons between conditions, including the control. The omnibus effect was significant ( $F(1,122)=4.26, p<.05$ ). Simple comparisons revealed significant differences between the in-group pro-healthy weight and pro-thinness conditions ( $t(122)=2.49, p<.05$ ), as well as between the out-group pro-healthy weight and pro-thinness conditions ( $t(122)=2.57, p<.05$ ). No condition differed



significantly from the control condition (all  $ps < .10$ ). The means for each of the five conditions on dieting intentions are presented in Figure 3.

***Intention to engage in health behaviours.*** The main effects of message content and source were non-significant ( $ps > .10$ ). The hypothesized message content by source interaction was significant ( $F(1,101)=4.21, p < .05, \eta^2=.04$ ). This effect was in the expected direction, such that participants' health behavioural intentions were influenced by the health promotion messages only when the speaker was female.

This analysis was repeated with condition entered as the only predictor (with five levels) in order to conduct simple comparisons between conditions, including the control. The omnibus effect was non-significant ( $F(1,122)=1.54, ns$ ). Simple comparisons revealed a significant difference only between the in-group pro-healthy weight and pro-thinness conditions ( $t(122)=2.41, p < .05$ ). No condition differed significantly from the control condition (all  $ps > .10$ ). The means for each of the five conditions on healthy-eating intentions are presented in Figure 4.

***Healthy-eating related behaviours.*** This analysis employed a stepwise binary logistic regression. The final model was significantly better than one including only main effects ( $\chi^2(1, N=105)=101.54-96.74=4.80, p < .05$ ), see Table 9. The interaction term was significant, Wald  $F(1,101)=4.33 (p < .05)$ . Participants were more likely to click on the healthy-eating link after watching the in-group pro-healthy weight message (40.9%) compared to the out-group pro-healthy weight message (7.7%,  $\chi^2(1)=7.44, p < .01$ ). By contrast, there was no difference between participants who viewed the in-group pro-thinness message (16%) compared to the out-group pro-thinness message (19.4%,  $p > .10$ ). The frequencies for each condition for healthy-eating related behaviour are presented in Figure 5.

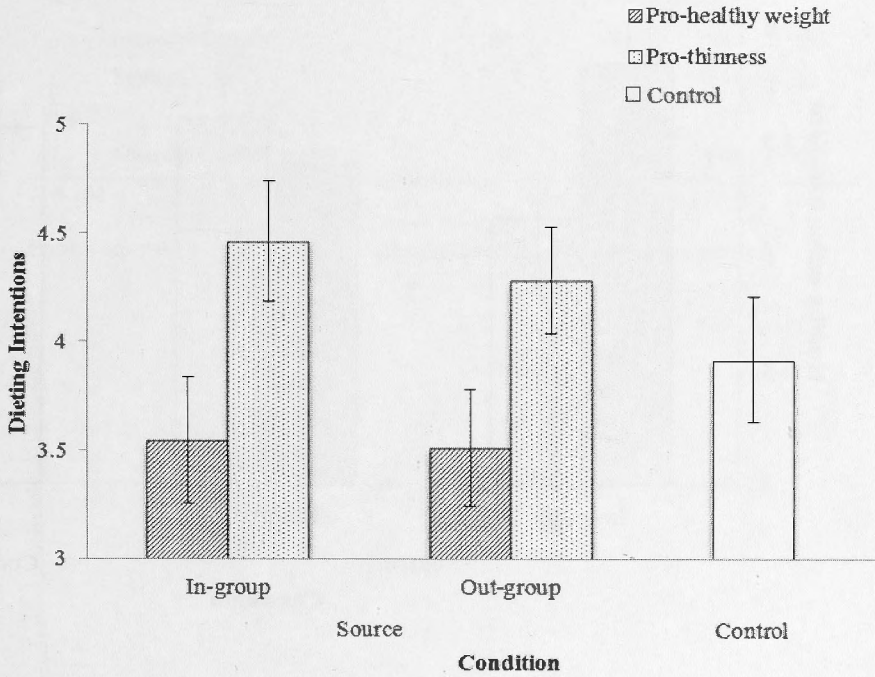


Figure 3. Message content predicts dieting intentions independent of source.

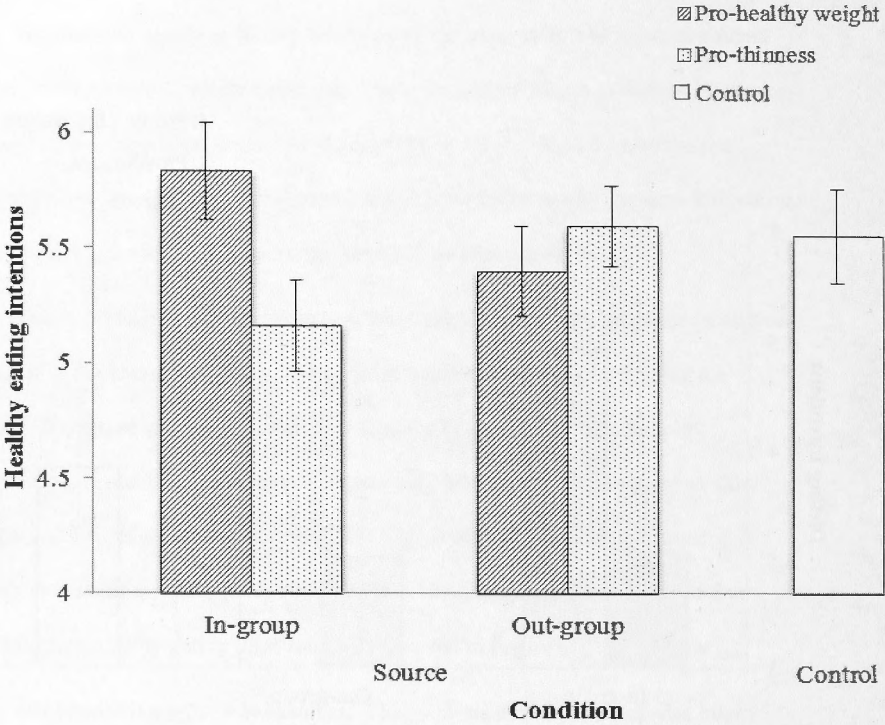


Figure 4. Message content and source interact to predict healthy eating intentions.

Table 9

*Stepwise Regression Analysis for Healthy-Eating Related Behaviour.*

Variable	<i>B</i>	<i>SE B</i>	Wald's <i>F</i>	<i>p</i> value
Step 1				
Message Content	.00	.29	.00	.99
Source	-.43	.28	2.41	.12
Step 2				
Message Content x Source	.59	.28	4.47	.035

*N* = 104

Entries are statistics for Step 2 in which all effects and interactions are entered.

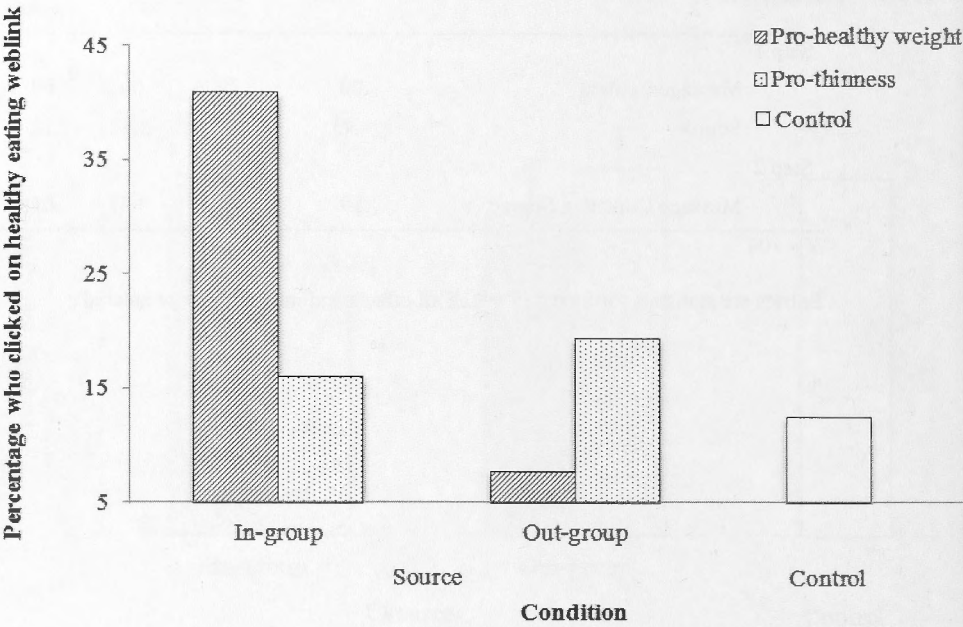


Figure 5. Message content and source interact to predict healthy eating related behaviour.

## General Discussion

### Evaluation of the Prediction

The results of the study support the predictions in most cases. A two-way interaction between message source and message content was supported for both measures of health behaviour – health intentions and seeking of healthy eating information. We expected that the same processes would occur for dieting intentions; that is, we expected that source and message content would interact to predict influence. However, this pattern did not occur. Instead, both in-group and out-group communications were effective in influencing dieting intentions. It is not clear why the out-group source was influential for dieting, but not healthy eating, behaviours.

### Self-Categorization Theory and Social Influence

As noted above, our tests of the hypotheses found the expected interaction, such that an in-group source was significantly more influential in affecting both participants' health behaviours and health intentions in a manner consistent with the message content. This finding is novel within the domain of eating behaviour, and is rarely considered in the design of interventions to improve public health. The results thus attest to the importance of considering social-psychological processes in the domain of healthy eating behaviours. Indeed, in many health promotion messages, it is assumed that an expert imparting factual information will be sufficient to change health behaviours. However, the current findings suggest that only messages from salient in-group members are attended to and acted upon. Within a social identity model of social influence, people are assumed to perceive members of their own group as legitimate sources of influence – they expect to agree with in-group members and are motivated to reduce any discrepancy in their views (Turner, 1991). Thus, people are not passive consumers of the media, but actively reconstruct the messages they are exposed to in

order to integrate them with their pre-existing understandings of norms and values of relevant group (in this case, female) identities.

Furthermore, this experiment presents evidence (for health intentions) in direct contrast to the “common sense” notion that women attend to their appearance (including their eating and weight) in an effort to impress men. Instead, it is one’s own social category that indicates appropriate eating behaviours – for healthy eating intentions, only the female speaker was influential. For dieting intentions, however, it is possible that dual processes were responsible for the main effect. That is, women may have attended to the female speaker because she was an in-group member, and to the male speaker because they sought to impress him. Nevertheless, the current research provides strong evidence that both research and theory need to attend more to the social environment in which individuals are embedded and the impact that this has on the effectiveness of health promotion communications.

In terms of the applied implications of this research, the results were particularly powerful for our measure of healthy-eating related behaviour. In fact, the *same* pro-healthy weight message prompted five times as many female participants to click on the healthy-eating link when that message was delivered by a woman, rather than a man. Although the study did not measure eating behaviour *per se*, this proxy measure was nevertheless relevant to public health and informational campaigns, as one of the goals of these programs is typically to increase interest in health information. A strength of the research was its demonstration that an in-group source is able to increase the effective behavioural response to a health promotion message regarding eating and weight. However, it remains unclear why the effect of the message on dieting intentions was not moderated by source. Given the significant body of research demonstrating the broad applicability of the social identity approach, it seems unlikely that dieting



represents a "special case" for the theory. Chapter 8 explores further the relevance of social identity processes for dieting intentions.

### **Future Directions**

Although this experiment has demonstrated that eating norms communicated by an in-group member are more influential, several questions remain about the generalisability of this effect. Firstly, the dependent variables used in this experiment, although more behavioural than much of the existing research, are only indicative of true eating behaviour. While eating intentions and clicking on an internet link are the closest proxies for eating that were possible in the online environment, actual food consumption would more powerfully demonstrate the applicability of the social identity analysis. Secondly, female identity is a social category with significant existing normative content about eating, weight and shape. It is possible, therefore, that the results of this experiment are specific to women (as a social category) rather than shared group membership *per se*. A demonstration of the same effect with a social category that has no existing normative content about eating would add value to the analysis. Both of these points are addressed with a follow-up experiment presented in Chapter 7.

Although the current experiment used only female participants, there is no reason to believe that the effects are gender specific, or indeed, gender category specific. That is, the social identity model of social influence holds that *any* salient social category might form the basis of shared group membership, and subsequently, enhanced social influence. For example, another social category that is highly relevant in this domain is weight itself. Future research may investigate social influence from same-weight and different-weight sources. This would involve additional methodological hurdles due to the confounding of status and weight (Puhl & Brownell, 2001), however, may reveal another important dimension on which shared group membership might be defined. In addition, the current experiment did not include

individuals with disordered eating (for ethical reasons). However, health interventions may be most effective if they target high-risk individuals already experiencing clinical symptoms. It would therefore be beneficial for future research to investigate the applicability of the social influence process outlined here within a clinical sample. This is addressed in a follow-up experiment presented in Chapter 9.

## **Conclusions**

This research has demonstrated that a group-process account of social influence contributes significantly to understanding eating intentions and behaviour. We found that the influence of a message on health behaviour (seeking healthy eating information) and behavioural intention (to eat healthily and exercise) is moderated by the shared versus non-shared group membership of the source – an in-group member was more influential. Overall, it is clear that the social identity approach has much to offer in enhancing the influence of health promotion messages.

## CHAPTER SEVEN

# MODELLING OF FOOD INTAKE IS MODERATED BY SALIENT PSYCHOLOGICAL GROUP MEMBERSHIP<sup>8</sup>

## Abstract

The present study demonstrates the utility of a social identity analysis of social influence in predicting eating behaviour. In a laboratory experiment (Study 6), female undergraduate students observed a confederate who appeared to have eaten a large or small amount of popcorn. The confederate was presented as either a fellow in-group member of a salient identity (same university) or an out-group member (another tertiary institution). Results supported the prediction that modelling of eating behaviour only occurs for psychologically salient in-group members; there was no modelling of out-group members' eating. These data also provide clear evidence of a psychological mechanism by which the modelling of eating behaviour can occur.

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<sup>8</sup> A version of this chapter is published in the journal *Appetite*:

Cruwys, T., Platow, M. J., Angullia, S. A., Chang, J. M., Diler, S. E., Kirchner, J. L., Léntfer, C. E., Lim, Y. J., Quarisa, A., Tor, V. W. L. & Wadley, A. L. (2012). Modeling of food intake is moderated by salient psychological group membership. *Appetite*, 58, 754-757.

## Literature Review

Experimental laboratory research has confirmed that social influence in eating behaviour is profound and robust. Individuals will model their eating on the food intake of fellow participants or confederates, mimicking choice of foods and particularly the level of food intake (Pliner & Chaiken, 1990). This modelling effect is resistant to change, and research has found that it is not moderated by weight status (Conger, Conger, Costanzo, Wright, & Matter, 1980), dietary restraint (Polivy, Herman, Younger, & Erskine, 1979) or personality characteristics (Herman, Koenig-Nobert, Peterson, & Polivy, 2005). Even participants who fasted for over 24 hours still varied their intake to conform to social cues signalling an appropriate level of food intake (Goldman, Herman, & Polivy, 1991). The dominant model to explain the modelling effect is a normative interpretation (Herman, et al., 2005; Herman, Roth, & Polivy, 2003). That is, individuals are said to attend to information about appropriate eating communicated through the behaviour of others.

The introduction of a social norms perspective represents a significant advance in our understanding of social influence in eating behaviour. This approach easily incorporates findings indicating that food intake may increase or decrease in the presence of others by drawing attention to normative beliefs as the key mechanism of modelling (Roth, Herman, Polivy, & Pliner, 2001). A normative interpretation also reconciles empirical differences between co-eating studies (where participants eat together) and confederate studies – in both cases it is norms driving eating behaviour. However, there are several contextual factors that appear to modify the modelling effect in complex ways. Current theories of norms in the eating literature are not able to explain why some models are more influential than others, or when modelling will persist in the absence of observers. Currently, we consider processes outlined in a

contemporary social-psychological theory of social influence in predicting when participants will model the food intake of a stranger while eating alone.

The social identity approach posits that social influence emerges primarily, if not solely, from those perceived to be fellow in-group members; members of salient out-groups are simply not considered to be relevant bases for developing an understanding of reality (Turner, 1991). Therefore, the most important feature of a model is not whether or not they are known personally to the participant or have objectively similar characteristics (e.g. weight, gender), but whether they are perceived to be similar on relevant dimensions. Therefore, this analysis predicts that perceived shared group membership will enhance modelling because individuals regard only in-group norms as having relevance to the self.

Previous research has demonstrated the importance of shared group membership in moderating social influence. For example, in one study participants listened to a stand-up comedian with a canned laughter track that they were told was recorded with an in-group or out-group audience of strangers. Smiling and laughter were significantly higher when participants believed that the laughter track was recorded with an in-group audience than an out-group audience (Platow et al., 2005). Other studies have found that facial mimicry is reduced when the target and the source do not share group membership (e.g. ethnicity or religion, Bourgeois & Hess, 2008; Yabar, Johnston, Miles, & Peace, 2006). Importantly, the moderating role of group membership on influence has been observed in health domains, including experiences of stress (Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005) and pain-based arousal (Platow et al., 2007). Three articles to our knowledge have applied a social identity approach in the domain of dieting and/or weight (Balaam & Haslam, 1998; Guendelman, Cheryan, & Monin, 2011; Oyserman, Fryberg, & Yoder, 2007). However, none of these have used a behavioural dependent variable.

In Study 6, we tested the prediction (based on a social identity analysis) that a norm for food intake would be influential only when participants perceive a shared in-group identity with the person communicating the norm. Toward this end, we manipulated whether a norm for food intake originated from an in-group or out-group member of a psychologically salient identity. We also varied the norm itself to be one of either relatively high intake or no food intake. The outcome measure was the amount eaten by participants themselves. We hypothesized a two-way interaction, such that participant eating would be influenced by food intake norms only when the source was an in-group member.

## Method

### Participants and Design

Participants were randomly assigned to one condition of a 2 (in-group/out-group model) by 2 (no eating norm/high eating norm) between-subjects design, plus control. In the control condition, participants were not explicitly provided with an eating norm. One-hundred and thirty female Australian National University (ANU) students ( $M = 19.77$  years old,  $SD = 3.83$ ) voluntarily participated<sup>9</sup>. Participants were not eligible to participate if they indicated a personal or cultural reason for not eating popcorn or had ever attended the Canberra Institute of Technology (CIT; the out-group). Participants were recruited through on-campus advertising or approached directly on campus. First-year psychology students were offered course credit for their participation; others received AUD\$10. The research was approved by the ANU Human Research Ethics Committee.

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<sup>9</sup> Only female participants were used for three reasons: i) this is standard practice in the literature for laboratory studies of food intake, ii) eating pathology primarily affects women, compelling a similar focus in research, and iii) we only had access to female confederates.

## Materials and Procedure

**Experimental manipulation.** The experiment was introduced as research comparing judgments of ANU promotional videos made by ANU and CIT students (in reality, only ANU students were recruited). These identities were chosen specifically to test the social identity premise that shared group membership will moderate social influence even for groups that do not have norms about eating. The ANU student identity is relatively content-free with regards to an existing norm for food intake (unlike, for example, the categories “women” or “obese”; Murnen & Smolak, 1997; Puhl & Brownell, 2001).

Popcorn was provided to participants ostensibly to make them feel “more relaxed” while watching the promotional videos. Participants’ ANU identity was made salient through: (1) various visual and verbal cues, including the attire of the experimenter, location of the experiment and the logo on the consent form, and (2) participants’ initial completion of a 14-item ANU social identification scale (e.g., “I am glad to be an ANU student”, 1 = “Strongly Disagree”, 7 = “Strongly Agree.”). Item responses are averaged such that a score of 4 represents moderate identification with ANU students. This scale has established reliability ( $\alpha=.80$  in this experiment) and validity with a wide range of social groups (Leach et al., 2008).

Participants were then led into a cubicle with a computer to watch the promotional videos. A confederate who appeared to be another student completing the same experiment was then encountered. The confederate, who was wearing a jumper visibly branded with either the ANU or CIT logo, stated which institution she was studying at and commented on how much popcorn she had eaten (i.e., “I ate all of that popcorn!” or “I didn’t eat any of that popcorn!” depending on the condition). The participants’ attention was also drawn to the confederate’s popcorn container, which was either full or almost empty. Nine different confederates were used throughout this experiment, all



of whom were university-aged women with body mass indices (BMI) in the low-normal range. The confederate left the room and the experimenter provided the participant with a full popcorn container (900mL, approximately 50g net). The participants were then left alone to view the three promotional videos.<sup>10</sup> In the control condition, no confederate was encountered.

**Participant questionnaire.** Following the completion of the promotional videos, the popcorn container was taken from the participant and weighed immediately in another room. The participant then completed the computer-administered questionnaire. Consistent with the cover story, three questions addressed the participant's attitudes toward the videos (e.g. "Which promotional video did you enjoy the most?"). Participants were then asked about the relative status of the two institutions; "I think ANU students are a higher-status group than CIT students." (1= "Strongly Disagree", 7 = "Strongly Agree"). We then measured individual differences in preference for popcorn by asking, "How much do you like popcorn in general?" (1="Like a lot," 5="Dislike a lot").

Participants then completed the first manipulation check: "When you came into this small room, did you see another participant who was just finishing the study?" ("Yes", "No"). Participants who answered "Yes" were directed to the following two further manipulation checks. The food intake norm manipulation was assessed by asking participants to, "Think back to when you saw the previous participant. How much popcorn do you think was left in their popcorn cup?" Response options were seven pictures of popcorn cups, ranging from almost empty to completely full. The

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<sup>10</sup> Participants watched three video clips promoting the Australian National University, for a total of 15 minutes. The first focused on the university's environmental credentials. The second was an interview with the new Vice-Chancellor, in which he emphasized various achievements of the university and goals for the future. The third clip promoted various clubs and societies within the university.

check on the group-membership manipulation was assessed by asking participants to, “Think back to when you saw the previous participant. What institution do you think they were studying at?” The two response options were pictures of each institution’s logo.

Finally, participants completed the Restraint Scale (Herman & Polivy, 1980). This is a ten-item, reliable ( $\alpha = .80$  in this experiment) and validated inventory that assesses individual differences in dietary restraint (i.e., chronic efforts to restrict food intake). It has a range of 0-35, with scores of 15 or higher typically considered to represent a “restrained” eating pattern.

Demographic information was collected from participants, including their age and self-reported height and weight. Finally, participants were asked an open-ended question: “What do you think was the true purpose of this study?”

## Results

### Manipulation Checks

Six participants were excluded from analyses by failing manipulation checks, either by falsely indicating that they encountered the confederate in the control condition; incorrectly reporting that confederate’s institutional affiliation; or indicating that the confederate’s popcorn was more than half full in the high food intake condition or less than half full in the no food intake condition. Five additional participants were excluded whose free-responses identified the true purpose of the study as social influence from the confederate. Therefore, 119 participants were included in the analysis ( $M$  Age = 19.39,  $SD$  = 2.50,  $M$  BMI = 21.66,  $SD$  = 3.69). Among these participants, ANU social identification was high, with the mean of 5.38 ( $SD$  = 0.60) differing significantly from the mid-point (i.e., 4) of the 7-point scale ( $t(118) = 25.22, p < .01$ ).

## Control Variables

Four variables were considered as potential control variables in order to rule out alternative explanations for the experimental findings: BMI, dietary restraint, perceived relative status of ANU vs. CIT and personal preference for popcorn. There were no significant mean differences between conditions on any of these variables. Participants' BMIs were mostly in the normal range, with 75 per cent of the sample falling between 18 and 25 kg/m<sup>2</sup>. Dietary restraint was moderate in the sample overall ( $M=12.95$ ,  $SD=5.57$ ). Participants on average perceived ANU to be of relatively high status, with the mean of 5.02 differing significantly from the mid-point (i.e., 4) of the 7-point scale ( $t(118)=7.38$ ,  $p<.01$ ). Personal preference for popcorn was moderately positive in the sample overall ( $M=3.80$  on a 5-point scale,  $SD=0.77$ ).

Only personal preference for popcorn significantly predicted food intake, and was thus included as a covariate in the reported analyses below. However, in order to rule out alternative explanations for the effects, analyses were repeated including BMI, dietary restraint and perceived relative status of ANU vs. CIT as covariates. In all cases, the hypothesized interaction remained significant, indicating that these variables do not account for the results.

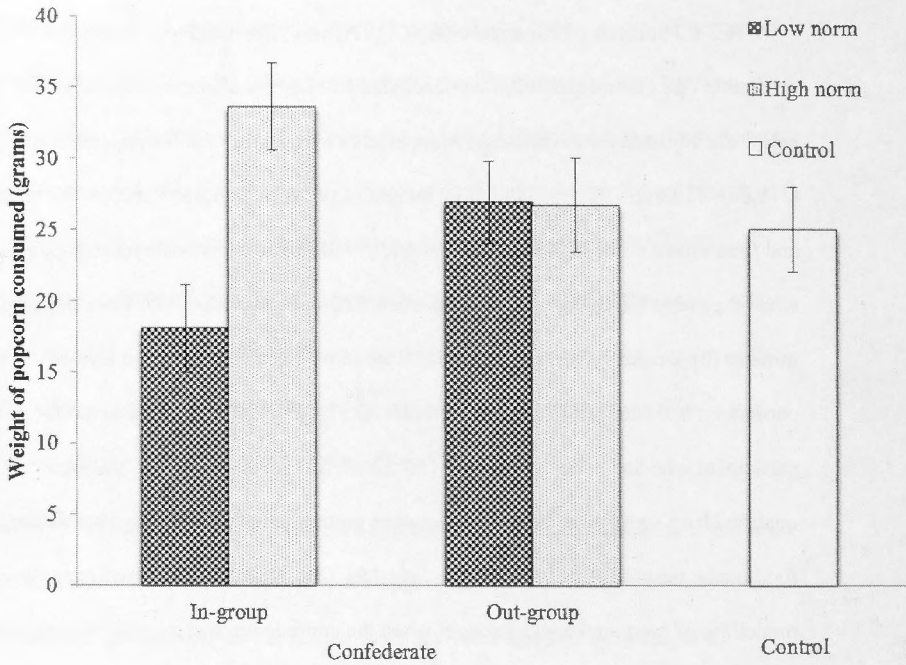
## Food Intake

The mean weight of popcorn eaten during the experiment was 25.08 grams ( $SD=16.54$ ); this equates to approximately half the popcorn that participants were given. As a result of minor variations in the cooking process (e.g. number of unpopped kernels, salt and butter quantities) the weight of popcorn required to fill the containers varied somewhat (gross initial weight  $M=129.18$  grams,  $SD=7.64$ ). This means it was possible for some participants to eat more popcorn than others (by weight) simply because of a higher initial weight. Therefore, initial weight of the popcorn was also entered as a

covariate in the analyses that follow. Neither initial weight of popcorn nor personal preference for popcorn were found to interact with any other predictors or one another.

A 2 x 2 analysis of covariance (ANCOVA) was conducted to evaluate the prediction (the control condition was excluded from this analysis; means presented below are adjusted for covariates). Main effects were significant for popcorn liking ( $F(1,86)=11.65, p<.01, \eta^2=.12$ ), initial weight of popcorn ( $F(1,86)=5.62, p<.05, \eta^2=.06$ ) and food intake norm ( $F(1,86)=7.18, p<.01, \eta^2=.08$ ). Participants ate more popcorn when they reported liking popcorn and when they were provided with more popcorn initially (by weight). Overall, participants ate more when they believed a prior participant had eaten all of her popcorn ( $M=30.37, SE=2.24$ ) compared to a prior participant who had eaten no popcorn ( $M=22.07, SE=2.10$ ). However, this was qualified by a significant interaction between group membership of the confederate and food intake norm ( $F(1,86)=7.98, p<.01, \eta^2=.09$ ). Consistent with the prediction, the modelling of food intake was stronger when the confederate was an ANU student rather than a CIT student (see Figure 6). Planned comparisons demonstrated that the only significant difference was between the two groups who observed an ANU student ( $t(86)=4.01, p<.01$ ).

A one-way ANCOVA with five levels (with identical covariates as above) was used to compare the experimental conditions with the control group. The overall effect was significant,  $F(4,112)=3.97, p<.01$ . Only two conditions differed significantly from the control condition: (1) participants ate significantly more when an ANU student set a norm for high food intake ( $t(112)=2.43, p<.05$ ), and (2) participants ate significantly less when an ANU student set a norm for no intake ( $t(112)=2.00, p<.05$ ).



*Figure 6.* Participants model food intake on the norm set by a confederate only when they are perceived to be an in-group member. NB. Means are adjusted for covariates.

## Discussion

The results of Study 6 support the prediction. Modelling of eating occurred only for participants who encountered an in-group member; there was no modelling at all when participants encountered an out-group member. These data provide support for a social identity analysis of social influence, in which the perception of shared group membership is a necessary condition of modelling. These effects persisted when we controlled for personal preference for popcorn, BMI, dietary restraint and perceived status differences between the groups. Furthermore, the fact that the category used for the study (ANU student) lacks specific norms for eating makes this a robust test of the prediction. It might be expected that for categories with strong existing normative content about appearance and eating (e.g., “women”), in-group members might be even more influential. However, this study has found that individuals will model in-group members purely because they are contextually categorized as in-group, despite the fact that the category may not previously have been associated with specific eating behaviours.

The social identity analysis offers a parsimonious model for interpreting previous findings in laboratory studies of food intake. For instance, this analysis predicts that group norms will drive individual behaviour whenever that identity is salient to the individual. Consequently, it follows that an individual will conform to group norms even while eating alone to the extent that a relevant group identity and concomitant norms remain psychologically central (e.g., Lea, Spears, & Watt, 2007). This is exactly what was found in the present study. Furthermore, using a group-based rather than an interpersonal model of social influence leads to the possibility of accurately predicting when an individual will model the food intake of a stranger. To the extent that a stranger is perceived to be similar to oneself on features that define the psychologically salient in-group (e.g., “we ANU students,”), people will seek to align their behaviours

with that stranger (as shown in other studies of social influence; Abrams, Wetherell, Cochrane, Hogg, & Turner, 1990). Again, this is what we found in the present study.

The social identity approach states that only in-group members are modelled as they inform a perceiver of who “we” are and what “we” do (Turner, 1991). By extension, the theory also states that people will not be influenced by another’s behaviour when a shared identity is not made salient. As evidenced in the current study, objective similarities (e.g. gender, age, weight) between the participant and the confederate did not result in modelling when the confederate differed on features defining the salient group membership (i.e. university affiliation). We fully expect that had a different social group been made salient in the study (e.g., gender), a different pattern of modelling would have occurred. Given the robustness of the modelling effect in the literature, the lack of modelling of out-group members in this study is perhaps more significant than the modelling of in-group members. Rather than individuals being subject to social forces beyond their control, a social identity analysis conceptualizes social influence (among other group-based processes) as the outcome of active and selective information processing, in which in-group communications are perceived to be more relevant to an individual (Mackie, Worth, & Asuncion, 1990).

The current study also has implications for naturalistic eating behaviour. If food intake can be modified through observing an unknown fellow student, it is likely that long-term eating habits are shaped by repeated exposure to the eating behaviours of in-group members. Eating behaviour is becoming increasingly disordered at an epidemiological level, with increasing rates of both eating disorders and obesity (Battle & Brownell, 1996; Currin, et al., 2005). Traditional explanations for disordered eating and obesity are predominantly individualistic and/or genetic (Hill & Melanson, 1999). However, a societal-level shift in behaviour suggests that the “pathology” is unlikely to be situated within individuals, but rather within social groups. In other words, obesity



and disordered eating may be merely a manifestation of increasingly pathological norms in valued social groups. As outlined elsewhere in detail (Turner & Oakes, 1997), the social identity approach is at the interface between the individual and societal levels of analysis. It provides a theory of the *psychological representation* of sociological constructs and can thus articulate the mechanisms through which social phenomena (e.g., in-group norms) may influence the behaviour of individuals (e.g. eating). We believe that social psychology has much promise in resolving the tension between sociological explanations (e.g., the “obesogenic” environment) and individualistic explanations (e.g., genetic vulnerability) for eating pathology by taking an interactionist approach.

Several potential limitations of the study can be identified. The large number of confederates used may have introduced error variance and reduced effect sizes. However, this may conversely be seen as a strength of the study. The confederates were broadly representative of the participants in terms of background, age and weight. Despite the effects of these important categories, a significant interaction was found between norm and student group membership (the salient category). In addition, given that the study was conducted with a university sample of females who were predominantly young and slender, caution is warranted in generalizing these results to males, eating disordered or obese populations. Finally, ANU students were considered by our participants to be a relatively high status group compared to CIT students. Previous research would suggest that the influence process is more complex for low-status groups (Ellemers, van Knippenberg, & Wilke, 1990), which is why we chose to first demonstrate the relevance of the theory in general without considering status. The social identity approach predicts that in-group norms are modelled for low-status group as well, but only to the extent that the in-group is valued by perceivers. If perceivers devalue the in-group and aspire to move to the high-status group (e.g. an obese person

who aims to be thin) we would predict the out-group to be emulated as, psychologically, this is the perceiver's reference group (Turner, 1991). Importantly though, the results of our experiment are identical when perceived status of ANU vs. CIT is entered as a covariate. Future research is needed to establish the social influence process among groups which may be explicitly devalued by their members (e.g. "obese").

Overall, the results of the present study support the prediction that it is primarily psychologically salient in-group members who provide meaningful information about appropriate eating behaviour. People will strategically attend to normative information provided by an individual with whom they perceive a shared group membership. We have demonstrated that people will not model the food intake of a confederate who is perceived to be an out-group member, regardless of any objective similarities in their gender, weight or age. This research suggests that pursuing a social-psychological approach may be a fruitful way to conceptualize social influence in eating behaviour. Evidence from the present study suggests that such work can contribute not only to the literature on eating behaviour, but also as a valuable test of social-psychological theory.

## CHAPTER EIGHT

### PREDICTORS OF DIETING INTENTIONS ARE CONTEXT-DEPENDENT

#### Abstract

It is well established that social and cultural factors may play a significant role in shaping eating behaviour. The process through which these sociocultural phenomena are *internalised* into an individual's identity has also received research attention. However, one social-psychological analysis of identity, the *social identity approach*, assumes that identity itself is highly fluid and context dependent. This assumption of variability is rarely considered in the existing literature on eating disorders, so that common predictors (e.g., thin-ideal internalisation) are assumed to be invariant. In three studies, this chapter evaluates the second hypothesis of the thesis – that the predictors of eating behaviour will vary as a function of variability in contextually salient identities. In Studies 7 and 8 thin-ideal internalisation had the strongest relationship with dieting intentions when either gender identification was weak (Study 7) or when personal identity was contextually salient (Study 8). In Study 9, the converse was investigated; as predicted, we found that the *content* of social identities (i.e., group norms) had the strongest relationship with dieting intentions when the relevant social identification was strong among respondents. The results are discussed with a focus on the implications for eating disorder treatment.

## Literature Review

Eating pathology has become a sizeable burden on the healthcare systems of Western nations (Mond, et al., 2009). Epidemiological data suggests that the incidence of eating pathology is increasing, particularly subclinical manifestations such as body dissatisfaction and unhealthy dieting (Hay, et al., 2008). In response to these data, researchers have scrutinised the predictors of eating disorders and their precursors (e.g. dieting). A number of personality characteristics that place an individual at elevated risk have been identified, including perfectionism (Tyrka, et al., 2002), low self-esteem (Shea & Pritchard, 2007) and impulsivity (Yeomans, et al., 2008), as well as many others (for reviews, see Cassin & von Ranson, 2005; Vitousek & Manke, 1994). These variables may have predictive utility, particularly in assessing an individual's clinical risk. However, this line of research inquiry that focuses primarily on *individuals* can provide only limited insight into the broader causes of the *collective*, culturally-bound shift toward unhealthy eating behaviour.

One area of research and theory that has attempted to address this gap between individual and collective approaches is that of the *thin-ideal model of disordered eating*. This takes as its starting point findings that thinness has come to define collective representations of successful and/or attractive women in Western media (Thompson, 1999). Evidence supports the assertion that the archetype of female attractiveness has become progressively unrealistic and thin. For example, an analysis of Playboy centrefold models and Miss America contestants found that there has been a gradual reduction in Body Mass Indices (BMIs), hip-to-waist ratios and body fat percentages over the last 70 years (Seifert, 2005; Wiseman, et al., 1992). A similar trend has been noted for children's dolls, such as Barbie (Norton, et al., 1996).

The thin-ideal model argues that this cultural endorsement of thinness has in

turn created widespread dissatisfaction among women exposed to such images, due to the significant discrepancy between their own shape and the idealized figure. Support has accumulated for this proposition, with both girls (Dittmar, et al., 2006; Murnen, Smolak, Mills, & Good, 2003) and women (Dittmar, et al., 2009; Krones, et al., 2005; Stice, et al., 2003) being more likely to experience body dissatisfaction following exposure to thin-ideal images. Body dissatisfaction leads women to attempt weight loss dieting (Tylka, 2004), which is in itself a predictor of progressively disordered eating (Hibbscher & Herman, 1977) and weight gain (Hill, 2004).

However, the thin-ideal model received criticism that it lacked specification of how individuals would be differentially affected by the thin ideal (Levine & Murnen, 2009). That is, how is it that two women with the same patterns of media viewing, could differ in their body dissatisfaction and dieting behaviours? In order to address this concern, recent research has turned to identifying variables that moderate the influence of the thin-ideal. For instance, women with low personal self-esteem are more vulnerable to this effect (Bailey & Ricciardelli, 2010), as are women who are high on measures of conformity (Twamley & Davis, 1999). Moreover, women who have internalized the thin ideal – that is, women who have accepted that thinness is desirable – are more vulnerable to body dissatisfaction following exposure to thin media images (Cusamano & Thompson, 1997; Thompson, 1999; Vartanian, 2009).

In terms of advancing understanding of the collective increase in disordered eating, the thin-ideal “internalisation” construct has much to offer. Most notably, this is one of the few models that addresses the intersection of sociocultural phenomena (i.e., the thin-ideal) and individual vulnerability (i.e., internalisation). Thin-ideal internalisation has subsequently become a widely used variable in the analysis of media influence and disordered eating. In large part, its popularity has been due to its stable effect sizes when predicting body dissatisfaction, disordered eating and other related

constructs (Thompson & Stice, 2001). Thin-ideal internalisation is typically measured using either the Internalisation of Body Ideals Scale (Stice, 2001) or the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ [Thompson, 1999]), both of which have been validated and found to be relatively stable across contexts. How thin-ideal internalisation develops has not been the subject of research attention, although it is typically assumed to be an individual-difference characteristic that results from many years of exposure to the thin ideal, but is resistant to change in the short-term (Thompson, et al., 2004).

However, it is this very stability and invariance of thin-ideal internalisation that may also lead to short-comings in its ultimate utility. Contemporary social psychological analyses, particularly those from a social identity approach, have demonstrated the manner in which people's identities are highly fluid and context-dependent (Haslam & Turner, 1992; Turner, 1999). In this manner, at any given time, in any given context, one identity or another will be relatively salient for the individual. At times, these identities will be highly personal, emphasizing one's relative uniqueness and differences from others. At other times, however, these identities will be highly social, emphasizing one's similarity to others (e.g., as woman, as an overweight person, as an Australian). This variability becomes important because separate social-psychological analyses have been quite conclusive in identifying a psychological sense of a common, shared social identity to be the key to effect social influence (Platow, Mills, & Morrison, 2000; Turner, 1991); this would include broader cultural influences on body image. In this manner, individuals do not differ in their "vulnerability" to social influence – rather influence varies contextually as a function of the salient self-categorisation of the individual, as well as the content of that categorisation (i.e., what that category means for him or her).

Although researchers of thin-ideal internalisation may have begun by exploring

situational or environmental factors that are responsible for societal trends, over time the internalisation construct has become reified. It is now treated by researchers as more akin to a personality variable, or in social-identity language, thin-ideal internalisation refers to the *content* of personal identity. However, it follows from the social identity approach that it is only when an individual self-categorises in terms of an identity (either social *or* personal) that ascribes to the thin ideal that his or her behaviour will be shaped by thin-ideal internalisation. In line with the second hypothesis of this thesis, then, it is posited that the predictive utility of thin-ideal internalisation will be moderated by salient identity.

There are two possible ways in which social identity might act as a moderator. It is possible that thin-ideal internalisation represents the content of a social identity, such as a group-based norm among women endorsing thinness. If this were the case, we would expect that the predictive utility of thin-ideal internalisation would be maximised when gender identity was salient for participants, and minimal in other circumstances (e.g., when other identities were salient). Alternatively, it is possible that thin-ideal internalisation is an individual-difference construct, as suggested by its stability over time in previous research (Thompson & Stice, 2001). If this were the case, a social identity perspective would predict that its relationship with behaviour would be maximised when the differences between the self and others (personal identity) were salient (Turner, Reynolds, Haslam, & Veenstra, 2006). To put this another way, we expect that thin-ideal internalisation will not be stable in its accessibility and relationship to behaviour. Instead, it is associated with a particular *identity* (either personal or social), and will thus only be activated when this identity is made salient.

As the reader will remember from the discussion in Chapter 3, the concepts of social identification (strength) vs. identity salience are theoretically interrelated. To recap, salient identities are currently psychologically prominent, whereas social



identification strength refers to the degree to which an individual sees a particular social category as self-defining and important. Theoretically, it is when an identity is both strongly held *and* contextually salient that it will best predict behaviour. However, methodological difficulties prevent the independent measurement and study of social identification and identity salience. For instance, it is very much possible to strongly identify with a social category that is not salient. However, in empirical research this is rarely the case, as simply reading and answering questions about a particular identity is sufficient to make that identity salient. Therefore, researchers typically assume that participants who indicate strong identification with a particular identity are currently experiencing that identity as salient (McGarty, 2001). In addition, researchers typically assume that making a particular social identity salient will be sufficient to drive group behaviour (e.g., Haslam & Turner, 1992; McGarty, et al., 1994), presumably because among their sample of choice, participants will (on average) identify strongly with the salient category. Both these assumptions are likely to be reasonable, especially given the success of past research using these strategies. Unfortunately, it is not possible to independently manipulate identity salience and measure social identification in the same study, and thus the current research must make similar assumptions. Studies 7 and 9 utilise measures of social identification, while Study 8 utilises a salience manipulation. Although the limitations of this approach are acknowledged, in keeping with previous research I henceforth assume that social identification and identity salience are somewhat interchangeable indicators of self-categorisation.

### Study 7

The current study aimed to determine whether thin-ideal internalisation was a construct best conceptualised as a group-process or individual-difference variable. The central prediction was that thin-ideal internalisation would *not* have a stable relationship with eating behaviour, as has been asserted in previous research. Rather it was predicted

that *the relationship between thin-ideal internalisation and dieting intentions will be moderated by social identification as a female*. However, specific predictions were not made about the direction of this relationship. Two alternative outcomes were considered possible, either:

- a) thin-ideal internalisation will predict dieting intentions most strongly when identification as female is low, suggesting that it is measuring individual differences in attitudes towards thinness; or
- b) thin-ideal internalisation will predict dieting intentions most strongly when identification as female is high, suggesting that it is measuring the normative content of female identity.

These predictions are depicted in Figure 7. Predictions concerned the direction of the interaction between thin-ideal internalisation and gender identification in a hierarchical regression model.

## Method

Participants were 104 Australian women who did *not* meet criteria for an eating disorder and were recruited for an online study on “Women’s Attitudes to Health Promotion.” Gender identity was made salient through recruitment strategies and headings throughout the study. Participants initially answered demographic questions, then completed a social identification scale. A persuasive communication was then included, the analysis of which was presented in Chapter 6.<sup>11</sup> This was followed by the thin-ideal internalisation scale and finally a measure of dieting intentions.

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<sup>11</sup> This sample and experiment is identical to that described as Study 5 in Chapter 6. As discussed in Chapter 4, these data were not presented earlier so that Hypotheses 1 and 2 could be considered separately.

The effect of the persuasive communication is not examined further in this chapter, however, the regression analyses that follow include the characteristics of the communication in order to control for the effects of this manipulation. The results of these expanded regression analyses are fully consistent with

*Being thin is important  
to me as an individual.*

I will intend to diet  
most when I think of  
myself as a unique  
individual.

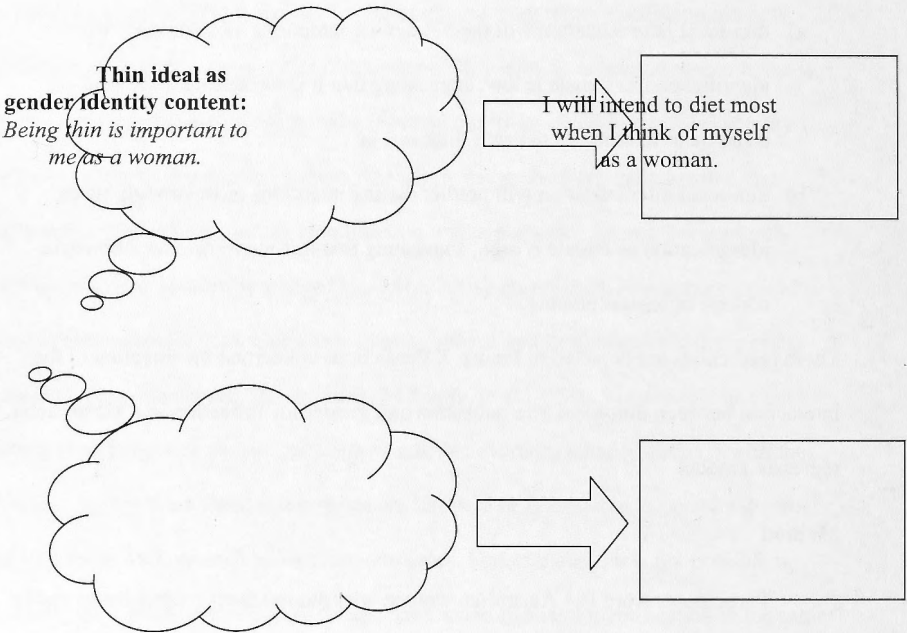


Figure 7. Thin-ideal internalisation conceptualised as identity content: Alternatives predictions for the outcome of Study 7.

the results presented in Chapter 6 and are not repeated here. Note that the control group as described in Chapter 6 is not included in this analysis as this would have precluded controlling for both message content and message source in the hierarchical regression analyses.

**Social identification.** Participants completed an 11-item social-identity questionnaire adapted from Leach et al. (2008; three items were removed due to poor fit with the social category of women). Participants responded to items such as, “I am pleased to be a woman” on a seven-point scale, anchored with “Strongly Disagree” to “Strongly Agree.” The identification scale acted as a salience manipulation for participants’ female identity; it also served as a measured independent variable.

**Thin-ideal internalisation.** Participants next responded to the internalisation subscale of the SATAQ (female version; [Thompson, 1999]), on a five-point scale ranging from “Strongly Disagree” to “Strongly Agree”. This scale measures the extent to which participants have internalised the idea that thinness is desirable (e.g., “I often read magazines and compare my appearance to the female models”) and has demonstrated reliability and validity (Thompson, et al. 2004).

**Dependent variables.** Participants indicated their dieting intentions using the Dieting Intentions Scale as validated in Chapter 5. In addition, we utilised the three items from Chapter 6 measuring healthy-eating intentions as a secondary dependent variable.

## Results

Participants did not differ significantly across message conditions on BMI ( $M = 24.26$ ,  $SD = 5.32$ ), age ( $M = 27.63$ ,  $SD = 12.52$ ) or level of social identification as female (all  $ps > .10$ ). The social identification scale ( $\alpha = .86$ ) had a mean of 5.39, which was significantly above the midpoint of 4 ( $t(103) = 17.57$ ,  $p < .01$ ); this indicates that, on average, the sample strongly identified as female. The thin-ideal internalisation scale ( $\alpha = .87$ ) had a mean of 3.31 ( $SD = 0.66$ ) on the five-point scale, indicating that, on average, participants had internalised the thin ideal to a moderate degree.

**Evaluation of the prediction.** Prior to the evaluation of the prediction, it was necessary to establish that neither the persuasive message nor social identification predicted thin-ideal internalisation. This was important as thin-ideal internalisation could not be utilised as an independent variable unless it was independent of the other independent variables. A full regression model including message content, source, social identification and all their interactions was conducted for thin-ideal internalisation. No significant effects were found (all  $ps > .10$ ). Subsequently, thin-ideal internalisation was used as a predictor variable for the analyses. The prediction was tested using hierarchical regression analysis. In Step 1, message content and message source (both contrast coded), social identification and thin-ideal internalisation were added to the model (we standardised these variables instead of centring them because the latter procedure did not resolve problems with co-linearity whereas the former did). In Step 2, all of the interactions of these variables were added.

*Dieting intentions.* Results of this analysis are displayed in Table 10. In addition to the main effect for message content (described in Chapter 6), the main effect for thin-ideal internalisation was significant, such that the more a woman had internalised the need to be thin, the *stronger* her intention to diet. The expected two-way interaction between thin-ideal internalisation and social identification was significant (see Figure 8). The direction of this effect was such that the more strongly a participant identified as female, the weaker the relationship between thin-ideal internalisation and intention to diet. This effect was qualified, however, by a significant three-way interaction between message content, social identification and thin-ideal internalisation. As seen in Figure 9, thin-ideal internalisation most strongly predicted dieting intentions among low-identifiers (as female) who viewed the pro-thinness message.

Table 10

*Results of Hierarchical Regression Analysis for Dieting Intention.*

Variable	<i>b</i>	<i>SE</i> <i>b</i>	$\beta$	Semi- partial $R^2$
Step 1				
Message content	.51	.13	.35*	.12
Source	.06	.13	.04	.00
Social Identification	.10	.13	.07	.00
Thin-ideal internalisation	.44	.14	.30*	.07
Step 2				
Message Content x Source	.05	.13	.03	.00
Message Content x Social Identification	-.10	.13	-.07	.00
Message Content x Thin-ideal internalisation	.02	.14	.01	.00
Source x Social Identification	-.58	.14	-.40*	.13
Source x Thin-ideal internalisation	.26	.13	.18*	.03
<b>Social Identification x Thin-ideal internalisation (H2)</b>	-.42	.16	-.28*	.05
Message Content x Source x Social Identification	.05	.14	.03	.00
Message Content x Source x Thin-ideal internalisation	.18	.14	.13	.01
Message Content x Social Identification x Thin-ideal internalisation	-.45	.16	-.32*	.06
Source x Social Identification x Thin-ideal internalisation	-.22	.15	-.15	.02

\* $p < .05$  $N = 104$ 

Entries are statistics for Step 2 in which all effects and interactions are entered.

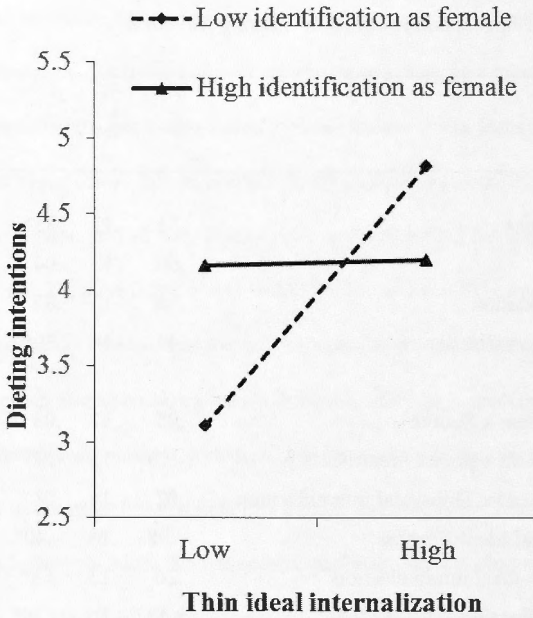


Figure 8. Social identification and thin-ideal internalisation interact to predict dieting intentions.



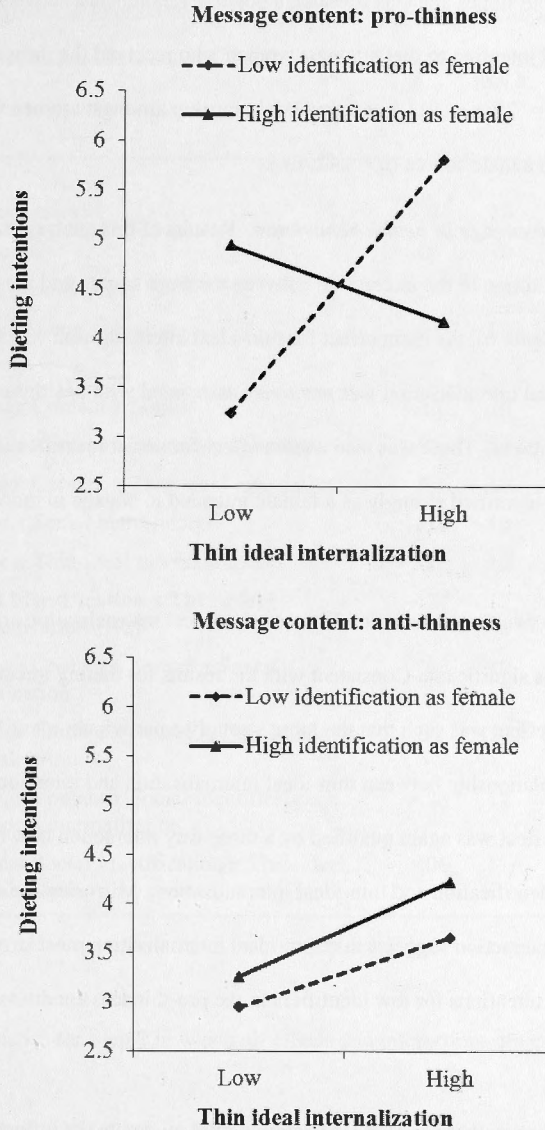


Figure 9. Three-way interaction between message content, social identification and thin-ideal internalisation predicts dieting intentions.

Unexpectedly, there was also a significant social identification by source interaction. Simple slopes analysis revealed a positive relationship between identification and intention to diet amongst women who received the message from a female source ( $\beta = .75, p < .01$ ), but no such relationship amongst women who received the message from a male source ( $\beta = -.42, ns.$ ).

***Intention to engage in health behaviours.*** Results of this analysis are displayed in Table 11. In addition to the interaction between message source and message content (described in Chapter 6), the main effect for thin-ideal internalisation was significant, such that thin-ideal internalisation was *positively* associated with healthy-eating behavioural intentions. There was also a main effect for social identification; participants who identified strongly as a female intended to engage in more healthy behaviours.

As predicted, the two-way interaction between thin-ideal internalisation and social identification was significant. Consistent with the results for dieting intentions, the direction of this effect was such that the more strongly a participant identified as female, the weaker the relationship between thin-ideal internalisation and intention to eat healthily. This effect was again qualified by a three-way interaction between message content, social identification and thin-ideal internalisation. Mirroring the results for diet intentions, this interaction suggests that thin-ideal internalisation most strongly predicted health intentions for low identifiers in the pro-thinness conditions.

## Discussion

The prediction that social identification would moderate the influence of thin-ideal internalisation on dieting intentions was supported. More specifically, the study found that thin-ideal internalisation, an important predictor of disordered eating

Table 11

*Results of Hierarchical Regression Analysis for Healthy-Eating Intentions.*

Variable	<i>b</i>	<i>SE b</i>	$\beta$	Semi-partial $R^2$
Step 1				
Message content	-.07	.10	-.07	.00
Source	.09	.10	.09	.01
Social Identification	.20	.10	.20*	.03
Thin-ideal internalisation	.41	.10	.41*	.13
Step 2				
Message Content x Source	.26	.10	.25*	.06
Message Content x Social Identification	.01	.10	.01	.00
Message Content x Thin-ideal internalisation	.05	.10	.05	.00
Source x Social Identification	-.16	.10	-.16	.02
Source x Thin-ideal internalisation	.06	.10	.05	.00
<b>Social Identification x Thin-ideal internalisation (H2)</b>	-.27	.12	-.26*	.04
Message Content x Source x Social Identification	-.05	.10	-.05	.00
Message Content x Source x Thin-ideal internalisation	.04	.10	.03	.00
Message Content x Social Identification x Thin-ideal internalisation	-.28	.12	-.28*	.05
Source x Social Identification x Thin-ideal internalisation	-.06	.11	-.05	.00

\* $p < .05$  $N = 104$ 

Entries are statistics for Step 2 in which all effects and interactions are entered.

behaviour in the clinical literature, was most relevant for low-identifying females. Its effects were attenuated for high identifiers. According to a social identity analysis, this indicates that thin-ideal internalisation is best conceptualised as an individual-difference construct. The social identity approach states that individual differences will be less important predictors under circumstances of high social identification (at which point social norms will be more likely to guide behaviour). Therefore, the results have value for two reasons. Firstly, the study provides evidence for the social identity proposition that social identification will moderate the relationship between established predictors and behaviour. Secondly, the study provides evidence for scope conditions of thin-ideal internalisation and suggests that it is functioning primarily as a personality-type construct.

It may seem counter-intuitive that a variable that explicitly references social phenomena (i.e., the cultural value of thinness) could be conceptualised as personality. Perhaps it would be more intuitive to find that thin-ideal internalisation was a measure of the endorsement of a norm for a particular group – most likely gender, given the explicit mention of gender comparisons within the scale questions. However, it is likely that the current result arises at least partially from the psychometric properties of the scale. That is, measurement instruments are more valued by researchers to the extent that they adequately distinguish individuals and are invariant across time and context (Cronbach & Meehl, 1955). These requirements give primacy to personality-type phenomena, and in this case may have resulted in thin-ideal internalisation being measured as a stable trait incidentally of the researchers' intentions. Further investigation of how an individual develops a thin-ideal internalisation would go some way towards resolving why thin-ideal internalisation functions as an individual-difference characteristic.

Two unexpected interactions were obtained in the study. The first (which only occurred for dieting intentions) was an interaction between social identification and message source, such that there was a strong relationship between participants' social identification as female and their intent to diet when the speaker was female, but no such relationship when the speaker was male. Although not directly relevant to the prediction of the study, this finding is nevertheless suggestive of a social identity process. Evidently, highly identified women experienced the messages differently, such that simply viewing a female speaker increased their dieting intentions. One possible explanation of this unexpected finding is that by portraying a high status in-group member as thin (as in the currently employed video), the female speaker may have set a descriptive norm of thinness. A descriptive norm refers to "what we *actually* do," in contrast to the behaviours prescribed or endorsed by the injunctive norm ("what we *should* do"). The female speaker in our video had a BMI of approximately 19.5, which is at the low end of the healthy range. Potentially, this *descriptive norm* of thinness may have operated concurrently with the *injunctive norm*, that is, the spoken message (Cialdini, Reno, & Kallgren, 1990), and both may have influenced participants in different ways. This would be consistent with previous research by Smith and Louis (2008) who found that the interaction between the perceived in-group norm and group identification predicted behavioural intentions. It was not possible to test directly the post-hoc proposition that a descriptive norm of thinness (i.e., the weight of the female speaker) was responsible for the observed source by identification interaction effect. It remains for future research to demonstrate whether this claim can be verified. Nevertheless, it is consistent with previous findings that being in the presence of a thin female leads to a reduction in female participants' body satisfaction (Stice, et al., 2003).

In addition, for both dependent variables, a significant three-way interaction was found such that the moderating role of social identification for thin-ideal internalisation

was particularly evident when participants had viewed a pro-thinness message. Although not predicted, this finding actually strengthens the social identity argument that context and identity salience are important determinants of influence (i.e., Proposition 2). That is, this interaction added an additional contextual qualifier to the predictive utility of thin-ideal internalisation. Although thin-ideal internalisation did predict behavioural intentions overall, this relationship was strongest under conditions where social identification (as a woman) was not high and participants had been exposed to a pro-thinness message. Interestingly, these are exactly the conditions in which studies of thin-ideal internalisation have usually been tested. For example, participants view images of ultra-thin models in a lab environment (Dittmar, et al., 2009). It is thus no surprise that thin-ideal internalisation has been identified as an important and stable predictor variable in the literature. However, women are often exposed to influence attempts that do not meet this description (e.g., advertisements that appeal to their female identity or government healthy-eating initiatives). Thus, it is simply not valid to consider personality features of individuals in isolation; as demonstrated by this study, the group process of social identification moderates the predictive utility of other variables for eating behaviour.

Several limitations of this study can be identified. One concern is that the experiment also made use of manipulated variables (i.e., via the persuasive messages) that were incidental to the prediction examined in this chapter (but critical to Hypothesis 1 examined in Chapter 6). Although these variables were not found to affect social identification or thin-ideal internalisation directly, there were significant interactions with these variables and the key measured independent variables. It is therefore necessary to replicate these results in a dedicated experiment without potential confounding variables. Additionally, this study tested the hypothesis only in a correlational fashion. Although social identification is conceptualised as a fluid and

context-dependent construct, in the present study low and high levels of identification are distinguished by differences in the way participants responded to the same context. Given the argument that identification is contextually variable, it is essential to demonstrate that the effects outlined in this study hold when salient identity is manipulated, rather than measured. Study 8 has an experimental design in order to provide such a test.

### Study 8

Study 8 modified the design of Study 7 in several important ways. Firstly, in order to experimentally test the hypothesised interaction between self-categorisation and thin-ideal internalisation, salient identity was manipulated. The present study made use of an established experimental technique for invoking salient identity, specifically national, gender or personal identity. Given that Study 7 suggested that thin-ideal internalisation is an individual-difference construct, it is theoretically the case that the current salience of a *social* identity (national or gender) should 'disable' its predictive power for disordered eating (Jacoby & Sassenberg, 2011). That is, because different self-categorisations are often assumed to be functionally antagonistic (Turner, et al., 1987), even if a perceiver highly identifies with a particular category, in contexts that invoke alternative identities this will become less contextually relevant.

Furthermore, Study 8 expanded on Study 7 by including male participants. Thin-ideal internalisation has been studied primarily with women, in keeping with the theoretical argument that it derives from a cultural norm of thinness among women only. However, by including men in this study, we were able to further test both a) the relevance of this norm for men, and b) whether it is similarly moderated by social identification.

Therefore in Study 8, the aim was to *experimentally* evaluate whether the predictive utility of thin-ideal internalisation is contingent upon contextually salient



identity. Specifically, it was predicted that there would be a two-way interaction between identity salience condition and thin-ideal internalisation in predicting dieting intentions. This interaction would be such that thin-ideal internalisation would most strongly predict dieting intentions when personal identity is salient, relative to either social identity.

## Method

**Participants and design.** One-hundred and sixty-seven<sup>12</sup> Australian participants were recruited and randomly assigned to one of three identity salience conditions (gender identity / national identity / personal identity). Gender and personal identity were chosen in order to be consistent with Study 7, while national identity was included as a comparison social identity that is not explicitly referenced in the SATAQ. Participants were recruited through advertising in online forums and networks, as well as on-campus advertising. First-year psychology students were offered course credit for their participation, and comprised 29.1% of the final sample (described further under Results below).

## Materials and procedure.

**Identity salience manipulation.** The manipulation of identity salience was adapted from previous research in the social identity approach (Haslam, et al., 1999; St Claire & He, 2009). From the commencement of the experiment, the research was introduced in one of three ways. In the gender identity salient condition, each page of the research made reference to gender differences (e.g. “Study of Gender Differences”

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<sup>12</sup> The original sample included an additional 133 people of other nationalities, all of whom were included in this dataset when it was presented as Study 4 of Chapter 5. However, these participants were not part of the intended sample for the current analysis, as it was important for the manipulation of national identity salience that all participants were of the same nationality.

and "Gender Differences in Attitudes"). The introduction began:

People belong to all kinds of groups, such as 'teenagers', sports clubs, political parties, religious groups and nations. People tend to be similar to members of their own group, and these groups differ from each other. In addition, the members of one group are likely to compare themselves with members of other groups. For example, members of one sports club can compare themselves with another, one political party with another, one nation with another and so on.

Participants were then asked to indicate their gender, and asked to list up to three things that they and most other people of their gender do a) often, b) rarely, c) well, and d) badly.

In the national identity salient condition, the study was introduced as "How Australians differ from other groups" and had page headings such as "Nationality differences in attitudes". After reading the same passage as above, participants were asked to indicate their nationality and list things that they and other people of their nationality do a) often, b) rarely, c) well, and d) badly.

Finally, in the personal identity salient condition, the study was introduced as "Study of Individual Differences: How well do you know yourself?" and had page headings such as "Your personal attitudes". The introductory passage began:

People differ from each other in all kinds of ways, and every person is a unique individual. One person loves music and another likes to go for a walk, and another person likes to read whereas another likes to go out. While there will be some ways you are similar to other people, there are also many aspects of yourself that make you different from others.

Participants were then asked to list things that they personally do a) often, b) rarely, c) well, and d) badly, compared to others:

**Manipulation checks.** Previous research has struggled to measure identity salience (Stryker & Serpe, 1994), as the contextual dependence of this construct is such that the very act of measuring an identity is likely to increase its salience. For this

reason, the current study trialled a novel technique designed to measure increases in the salience of identity at an individual-participant level, rather than scales designed to show differences between groups in relative identity strength. Participants were asked identification questions only about the identity that was made salient in their condition. Of the six-item scale, three items were randomly selected to be presented before the salience manipulation and the remaining three were presented following the manipulation. A higher score on the second set of items would indicate an increase in identity salience. The six items were chosen from existing social identification scales, all of which could be considered measuring the *centrality* factor, e.g. “My (gender/nationality/individual personality) is an important reflection of who I am” (Cameron, 2004; Leach, et al., 2008). Questions were limited to this dimension as these were the most appropriate and comparable across identities. That is, many of the questions about other dimensions of identity (e.g. “I have a lot in common with the average (in-group) member”) are not easily adapted to use with the personal identity construct.

A second, more conventional manipulation check for identity salience was presented to participants following the dependent variable (but prior to demographic questions). This item asked participants to rank order the importance of each identity at this point in time (“My nationality (as an Australian, American, etc)”, “My gender (as a man or woman)” and “My Individuality (as separate and different from others)”.

***Thin-ideal internalisation.*** Participants next responded to the internalisation subscale of the SATAQ (Cusamano & Thompson, 1997), on a five-point scale ranging from “Strongly Disagree” to “Strongly Agree”. Study 7 suggested that this scale measures the extent to which participants have internalised the thin ideal into their personal opinions (e.g., “I often read magazines and compare my appearance to the female models”). As the scale wording differs slightly for males versus females,

participants were asked to indicate their gender immediately prior to the SATAQ such that they could be provided with the correct version (except in the gender-identity salient condition, where participants had already indicated their gender).

***Dieting Intentions Scale.*** The dependent variable included was, again, the Dieting Intentions Scale.

***Eating Disorders Examination – Questionnaire.*** To assess clinically severe disordered eating, participants completed the Eating Disorder Examination Questionnaire (EDE-Q [Fairburn & Cooper, 1993]). These 42 questions (e.g., “Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight?”) refer to participants’ experiences over the previous 28 days and the scale has good reliability and validity as a diagnostic screening tool and measure of symptom severity (Mond, Hay, Rodgers, Owen, & Beumont, 2004). The EDE-Q was scored according to the recommended protocol and participants above the 90<sup>th</sup> percentile were considered to have an eating disorder and were excluded from the sample.

***Demographics.*** At the end of the study, participants answered demographic questions about their age, language spoken at home, nationality and ethnicity. They also provided their height and weight. Participants then received debriefing information and were given the opportunity to make further comments about the study.

## Results

***Inclusion criteria.*** Participants meeting criteria for a clinically severe eating disorder (above 90<sup>th</sup> percentile on the EDE-Q) were excluded from the sample, both to maintain consistency with the Study 7 and because they were expected to show a ceiling effect for thin-ideal internalisation and dieting intentions. Twenty-two participants were excluded from the sample in this way, all of whom were female.

In addition, 20 participants were excluded who did not complete the study in one sitting (i.e., completion time recorded by the software was more than one hour). The nature of the identity salience manipulation was only short-term, and therefore participants who were likely to have initiated the study and completed the dependent variable on different occasions were excluded.

**Descriptive statistics.** One hundred and twenty-five participants were retained for the analysis, of which 59 were men. Participants ranged from 17 - 75 years in age, with an average of 31.89 ( $SD = 14.68$ ). Mean BMI was 25.34 ( $SD = 6.01$ ). Thin-ideal internalisation ( $M = 3.00$ ,  $SD = 0.73$ ) and dieting intentions ( $M = 4.27$ ,  $SD = 1.47$ ) were both moderate in the sample overall.

**Manipulation checks.** For each participant, Time 1 identification (the average of the first three items answered, prior to the salience manipulation) and Time 2 identification (the average of the second three items answered, following the salience manipulation) were calculated. Note that the items which formed each scale varied randomly across participant. Paired sample  $t$ -tests were run for each of the three identity salience conditions separately to determine whether average identification differs between Time 1 and 2. In the gender identity salient condition, there was no significant difference between Time 1 ( $M_1 = 4.51$ ,  $SD_1 = 1.49$ ) and Time 2 identification ( $M_2 = 4.47$ ,  $SD_2 = 1.35$ ). Importantly, though, Time 2 identification significantly differed from the mid-point of the scale ( $t(35) = 2.09$ ,  $p < .05$ ), indicating that participants in this condition did currently identify as men/women. In the national identity salient condition, there was no significant difference between Time 1 ( $M_1 = 3.98$ ,  $SD_1 = 1.04$ ) and Time 2 identification ( $M_2 = 3.73$ ,  $SD_2 = 1.26$ ). Time 2 identification did not differ from the mid-point of the scale ( $t(41) = -1.39$ ,  $ns.$ ), indicating that participants in this condition neither identified, nor disidentified, with their nationality. In the personal identity salient condition, there was no significant difference between Time 1 ( $M_1 =$

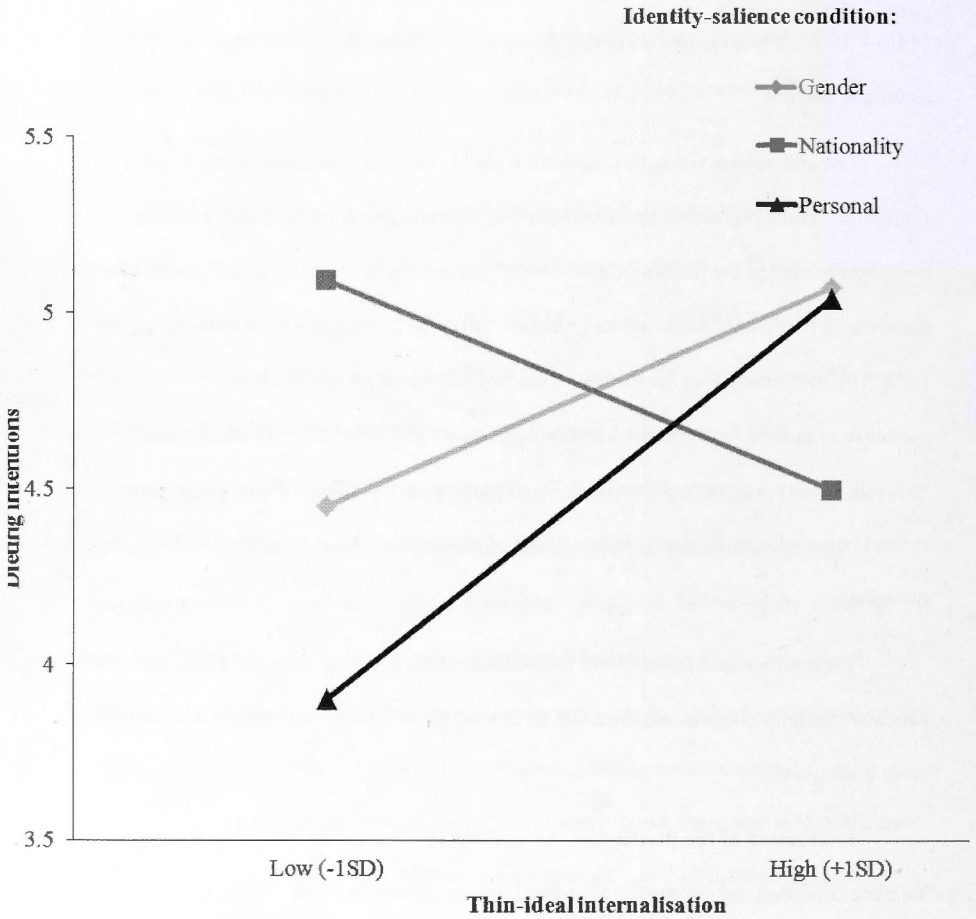
5.48,  $SD_1 = 0.91$ ) and Time 2 identification ( $M_2 = 5.31$ ,  $SD_2 = 0.88$ ). Importantly, though, Time 2 identification was significantly higher than the mid-point of the scale ( $t(46) = 10.25$ ,  $p < .01$ ), indicating that participants in this condition strongly identified as unique persons.

The alternative, second manipulation check was assessed using binary logistic regression. Three regression analyses were run to determine whether identity salience condition predicted the likelihood that gender, nationality or personal identity would be chosen as a participant's first-ranked identity. All of these analyses were non-significant ( $ps > .10$ ), suggesting that the manipulation had no impact on which identity participants ranked first. Gender identity was ranked first by 11.2% of participants, national identity was ranked first by 2.4% of participants, while 72.8% of participants ranked personal identity first (the remainder of participants did not respond to this question).

Therefore, based on the two manipulation checks, it would appear either that the salience manipulation was unsuccessful in this study, or that the manipulation checks were inadequate.

**Evaluation of the prediction.** An analysis of variance confirmed that identity salience condition did not predict thin-ideal internalisation ( $p > .10$ ). Next, a hierarchical regression analysis was used to evaluate the prediction. Thin-ideal internalisation was centred and two vectors (dummy coded) were created for the identity-salience condition variable. The main effects were entered at Step 1, while the two vectors representing the two-way interaction were added at Step 2.

The results of the regression analysis indicated a significant main effect for thin-ideal internalisation,  $t(119) = 2.10$ ,  $p < .05$ . As predicted, the addition of the two-way interaction at Step 2 significantly improved the model,  $F_{\text{change}}(2,119) = 3.36$ ,  $p < .05$ . The two-way interaction is presented in Figure 10. This effect was in the expected



*Figure 10.* Identity-salience condition and thin-ideal internalisation interact to predict dieting intentions.



direction: thin-ideal internalisation predicted dieting intentions most strongly when personal identity was salient, weakly when gender identity was salient and not at all when national identity was salient. The analysis was repeated with participant gender included as a predictor, however, neither its main effect nor any interaction were significant, and it was not found to add any explanatory power to the model.

## Discussion

The results of Study 8 are consistent with the prediction. Thin-ideal internalisation had the strongest predictive relationship with dieting intentions when personal identity was made contextually salient, relative to when gender or national identity was salient. This converges with the results of Study 7 to suggest that thin-ideal internalisation does not, as some researchers have claimed, measure degree of endorsement of social norms for thinness. Instead, thin-ideal internalisation appears to be a “crystallised” personal attitude towards thinness. That is, when answering the Sociocultural Attitudes Towards Thinness Questionnaire, it would seem that individuals are responding with an implicit comparison to others: “How much do I, compared to similar others, think thinness is a good thing?” Consequently, this scale best predicts behavioural intentions when a person perceives his or her own identity in similar terms (i.e., “myself as a unique individual”).

The social identity approach may also provide some insight into the mechanism through which thin-ideal internalisation may have developed. Although this is a novel area of research among social identity theorists, emerging evidence suggests that the norms, beliefs and values of superordinate groups can come to influence, and even define, the content of subcategories (including personal identity [Baray, Postmes, & Jetten, 2009]). This is because of the inherently comparative nature of categorisation, whereby any particular in-group-out-group perception takes place against the backdrop of an all-inclusive superordinate identity (Turner, et al., 1987). For example, two

adolescent girls in the same peer group may compete over who personally is the thinnest – suggesting the salience of personal identity. However, the shared *value* of thinness derives ultimately from the shared category of gender and/or the peer group. It is through just such a process that thin-ideal internalisation is proposed to develop into a personal attitude toward thinness. While functioning as an individual-difference variable, its development stems from the value placed on women's body shape and size in Westernised countries. Although the mean levels of thin-ideal internalisation may be lower for men, this study provides no evidence for any fundamental difference between men and women in the route through which such beliefs develop.

The significance of these results is not purely theoretical. Given that thin-ideal internalisation is a robust and stable personality construct, any intervention that weakens the link between thin-ideal internalisation and associated behaviours such as unhealthy dieting has substantial clinical utility. Therefore, the current results suggest that there is substantial value for future clinical research which focuses on modifying social identity salience and content as a means of disrupting disordered behavioural patterns.

The most important limitation of this study is the potential problem with the identity-salience manipulation, as indicated by the manipulation checks. For example, there is no direct evidence confirming that gender identity was indeed salient in the gender-identity salient condition. However, given that the predicted result was obtained, the more parsimonious explanation is the failure of the manipulation checks, rather than the failure of the salience manipulation itself. This speaks to the difficulties of measuring identity salience in general. Frequently, studies of this kind have omitted manipulation checks completely (e.g., Shih, et al., 1999) due to this problem. As an aside to the primary goal of this project, this study has suggested the need for valid and reliable measures of identity salience which, unlike social identification scales, do not

actively change the very construct they are trying to measure. This is an essential task for future research if further investigation of identity salience and its context-dependence is to be carried out.

A second potential limitation warrants mention. It was necessary to ask for participants' gender immediately prior to the SATAQ scale in the national-identity and personal-identity salient conditions (so that the correct version of the scale could be presented). The fluid and responsive nature of identity salience is such that this may have potentially overridden the active salience manipulation and rendered gender identity salient instead, at least for some individuals. However, as per the argument made above, the fact that the prediction was upheld suggests that the failure of the salience manipulation is unlikely.

Studies 7 and 8 have provided evidence that thin-ideal internalisation is a) an individual-difference variable and b) limited in its predictive power to times when personal identity is salient. However, given that the broader aim of the thesis is to provide insight into the group-processes that predict disordered eating, this result raises the question of what psychological variables predict dieting intentions when a *social* identity is salient. Study 9 addresses this question by reviewing, and then replicating, the interaction between group norms and social identification in predicting behaviour.

### Study 9

The goal of Study 9 was to elucidate the predictors of dieting intentions for high identifiers with their gender. In line with a social identity analysis of social influence, it was predicted that perceived norms of the gender group would predict dieting intentions more strongly among high identifiers with the gender category than among low identifiers.

The relationship between social norms and measurable behaviour has been researched extensively within the Theory of Planned Behaviour (TPB) literature (Ajzen, 1991; Armitage & Conner, 2001). This model states that one of the three major predictors of behavioural intentions is the *subjective norm* – the behaviour that the individual perceives to be both typical and endorsed by important others. However, research has most commonly found that subjective norms account for substantially less variance in behavioural intentions than the two other TPB predictors - individual attitudes toward the behaviour and perceived behavioural control (Armitage & Conner, 2001; Manning, 2009).

Social psychologists, however, have criticised the measurement of subjective norms in the TPB tradition. Specifically, research has long indicated an important distinction between *injunctive* and *descriptive* norms (Cialdini, et al., 1990). An injunctive norm refers to behaviour prescribed or endorsed by the reference group - that is, “what we should do”. A descriptive norm, on the other hand, refers to behaviour that is frequently seen in the reference group – “what we actually do”. In many domains, behaviours explicitly endorsed map closely on to behaviours actually performed. However, for many behaviours in the health domain these dimensions are not so closely associated. For example, parents who smoke will rarely explicitly endorse smoking for their children. Nevertheless, they communicate a descriptive norm of smoking and consequently the children of smokers are much more likely to smoke themselves (Jackson & Henriksen, 1997). Therefore, accurate measurement of norms requires that these two dimensions be distinguished.

A further criticism of the subjective norms concept has been made by social identity researchers in particular. This is that the conceptualisation of the “reference group” has been crude and underspecified. A social identity analysis of norms includes a perception of shared group membership as a necessary precondition of normative

influence. Therefore, the use of “others important to me” as the reference group of interest in the existing scales fails to capture a meaningful and specific social identity for participants. Social identity informed research has demonstrated that rephrasing these subjective norm questions to refer to a meaningful group of interest (e.g., gender group, ethnic group, friends, etc.) strengthens the relationship with behavioural intentions, particularly among high identifiers (Terry, et al., 1999). For example, Louis et al. (2007) predicted unhealthy eating behaviours among a student sample using variables from the Theory of Planned Behaviour. The model was improved if perceived norms of the student group, identification with the student group and their interaction were included in the model. This approach has been validated for a wide range of health behaviours, including exercise (Terry & Hogg, 1996) and binge-drinking (Johnston & White, 2003) as well as eating (Åstrosm & Rise, 2001; Smith et al., 2008). Most persuasively (due to its experimental design), Tarrant and Butler (2011) manipulated currently-salient identity to determine the impact on an individual’s intention to engage in a variety of health behaviours (e.g., reduced salt or alcohol intake). It was found that participants had a stronger health orientation when their British nationality was made salient than when their university-student identity was made salient.

Therefore, substantial evidence has already been accumulated that, as a converse to thin-ideal internalisation, when a person strongly identifies with a particular social identity, it is the norms of this identity that will best predict his or her behaviour. However, less research has investigated *both* injunctive and descriptive norms from a social identity perspective in the context of health behaviour. Among the studies that exist, evidence is mixed as to whether injunctive (Christensen, Rothgerber, Wood, & Matz, 2004; Larimer, Turner, Mallett, & Geisner, 2004; Smith & Louis, 2008) or descriptive norms (Manning, 2009; White, Smith, Terry, Greenslade, & McKimmie, 2009) best predict health behaviour.

The present study aimed to replicate the interaction between social norms and social identification in predicting health behaviour, using the dependent variable of dieting intentions. Specifically, it was predicted that the relationship between gender norms for thinness and dieting intentions would be strongest among high identifiers with the gender category. Given the ongoing debate in the literature regarding which norms best predict health behaviour, we measured both injunctive and descriptive norms for thinness, in order to investigate when the proposed interaction was applicable.

## Method

Sixty-seven participants (35 female) were recruited to complete the survey (age  $M=22.00$ ,  $SD=3.01$ ).<sup>13</sup> Participants completed the survey during laboratory classes of a third-year social psychology course as part of a learning exercise. Men and women were given different versions of the questionnaire in order to include specific references to their gender in the questionnaire (i.e., men or women).

**Injunctive norms.** A measure of injunctive norms was adapted from the TPB literature (Armitage & Conner, 1999; Åstrosm & Rise, 2001; Johnston & White, 2003; White, et al., 2009). These items were framed to specifically refer to the gender group (e.g. “If I were to lose weight, men/women I know would...” ; Approve-Disapprove, seven-point scale). These four items that measured injunctive norms had a reliability coefficient of .68, and were averaged to create an injunctive norms scale (see Table 12).

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<sup>13</sup> This sample is the same data collection occasion as Time 1 of Study 2 described in Chapter 5. However, 31 female participants were not included in the analysis presented here as they were asked about the norms of “others” more generally, rather than their gender group. No effects of interest were found, and this subgroup was not used as a control in the present analysis due to an inability to meaningfully measure identification with “others”. For this reason, this subgroup of females is not discussed further in this analysis.

Table 12

*Measures of Social Norms*

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Injunctive Norms Items

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1. If I were to lose weight, women/men I know would...  
(*Disapprove.....Approve*)
  2. Women/Men I know think that going on a weight-loss diet would be...  
(*Undesirable....Desirable*)
  3. Most women/men I know think I... (*Should lose weight.....Should not weight*)
  4. How many women/men you know would think that losing weight is a good thing?... (*No-one .....Everyone*)
- 

Descriptive Norms Items

---

How often do most women/men you know... (*Never.....Very frequently*)

1. Eat diet or low fat foods.
  2. Go to the gym to do cardio exercise.
  3. Discuss diet or weight loss tips.
  4. Skip meals.
  5. Count calories.
  6. Take supplements to speed up fat loss.
  7. Avoid certain foods altogether.
  8. Weigh themselves.
- 

Norms were measured on seven-point Likert scales, with the anchors outlined in italics in the table above.



**Descriptive norms.** A measure of *descriptive norms* was also included.

Participants were asked “How often do most women/men you know...” perform each of eight dieting behaviours. Responses were on a seven-point Likert scale with anchors of “Never” and “Very frequently”. The eight items measuring descriptive norms had a reliability of .79, and were averaged to create a descriptive norm scale (see Table 12).

**Social identification.** Secondly, a measure of social identification with the gender group was included. Adapted from Leach et al (2008), this scale included eleven items (e.g. “I often think about the fact that I am a man/woman”) on a seven-point scale from Strongly Disagree-Strongly Agree). One item was excluded to improve reliability, resulting in a ten-item scale ( $\alpha = .89$ ).

The dependent variable of interest was, again, the Dieting Intentions Scale. Finally, participants were asked demographic questions, including age and gender, as well as indicating their consent for the data to be included in research.

## Results

Descriptive statistics for the four scales for each gender are presented in Table 13. Gender did not significantly predict dieting intentions alone or in interaction with the other variables, and as such was not included as a predictor in the analysis that follows.

Firstly, the injunctive norm scale and social identification scale were centred and entered into a regression analysis along with their interaction. The model was significant ( $F(3,63) = 5.58, p < .01$ ), explaining approximately 21% of the variance in dieting intentions. Injunctive norms significantly predicted dieting attitudes,  $t(65) = 3.65, p < .05$ . Participants who perceived there to be a norm favouring thinness in their gender group were more likely to report strong intentions to diet. However, this effect was qualified by a significant interaction between injunctive norms and social

Table 13

*Descriptive Statistics for Study 9.*

	Female participants		Male participants	
	M	SD	M	SD
Injunctive norm scale <sup>a</sup>	4.95	0.72	4.24	0.61
Descriptive norm scale <sup>a</sup>	4.21	1.16	2.77	0.85
Social identification scale	5.03	0.77	4.69	1.14
Dieting intentions	3.93	1.66	3.74	1.50

a. These variables differed significantly between males and females at  $p < .01$ .

identification,  $t(65) = 2.28, p < .05$ . The more strongly participants identified with their gender group, the more strongly injunctive norms predicted dieting intentions. The interaction effect is presented in Figure 11.

In a second analysis, the above regression was repeated with descriptive norms. Descriptive norms significantly predicted dieting intentions, ( $t(63) = 2.25, p < .05$ ). However, there was no significant interaction between descriptive norms and social identification ( $p > .10$ ).

A final analysis included all the predictors – descriptive norms, injunctive norms, social identification – and all of their interactions in a regression analysis. The results for injunctive norms were identical, but the main effect for descriptive norms fell to non-significance. No further interactions were significant (although note, that due to the small sample size this analysis had reduced power).

## Discussion

Study 9 supported the prediction that social identification moderates the relationship between social norms and dieting intentions. Only when social identification with the gender group was high did perceived injunctive norms of the gender group predict an individual's dieting intentions. Interestingly, it was only injunctive norms that interacted with social identification to predict dieting intentions in this study. Descriptive norms weakly predicted dieting intentions, but did not interact with social identification. Although not predicted, this result is consistent with some other literature (Christensen, et al., 2004; Larimer, et al., 2004; Smith & Louis, 2008) where a stronger relationship has been found between injunctive norms and behaviour. This is perhaps unsurprising, particular in health domains, where it is common for behaviours to be more commonly prescribed than actually performed. That is, dieting

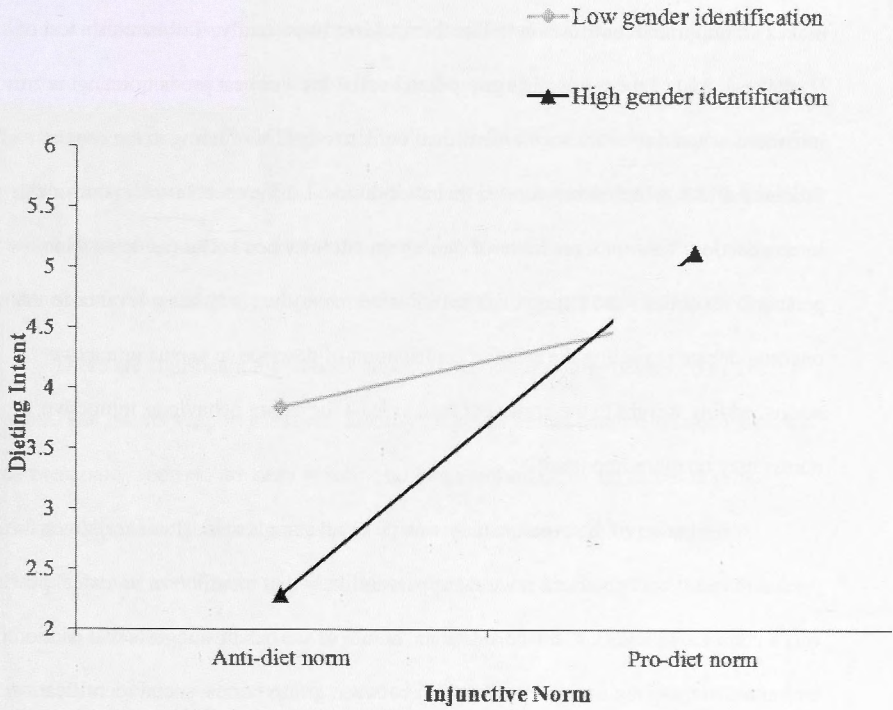


Figure 11. The relationship between injunctive norms and dieting intent is strongest among high identifiers (plotted points are one standard deviation above and below the mean for each variable).

intentions may be capturing variance associated with injunctive norms, while actual behaviour may correspond more closely to descriptive norms.

Although in many ways this study represents a replication of previous work (e.g., Louis, et al., 2007; Smith & Louis, 2008; Tarrant & Butler, 2011) it nevertheless makes an important contribution to this thesis. Most importantly, it illustrates a test of Hypothesis 2 b) of the thesis, that group-level variables will best predict dieting intentions when a relevant social identification is strong. This finding is the converse of Studies 7 and 8, which demonstrated that an individual-difference variable, thin-ideal internalisation, was *not* a predictor of dieting intentions when social (as opposed to personal) identities were strong or salient. Furthermore, the study has relevance to the ongoing debate regarding the relative contribution of descriptive versus injunctive norms, adding weight to the argument that, at least for eating behaviour, injunctive norms may be more important.

A limitation of the current study was its small sample size. However, given the predicted result was obtained, it would appear unlikely that insufficient statistical power was a concern. In addition, the correlational nature of the design suggests that caution is warranted in inferring a causal relationship between group norms, social identification and behaviour. The causal nature of this relationship is better demonstrated by research using experimental designs (e.g., Tarrant & Butler, 2011).

In terms of future research, the evidence is now sizeable that group norms interact with social identification to predict behaviour. However, the link between this conceptual point and health interventions is yet to be made. A valuable extension of this work would be to demonstrate that normative or identity change can generate meaningful behaviour change.

## General Discussion

The three studies presented in this chapter provide evidence that self-categorisation moderates the predictors of dieting intentions. In particular, both correlational and experimental evidence indicates that thin-ideal internalisation is an individual-difference construct, and correlational evidence indicates that injunctive norms are a group-process construct. Although the quality of the evidence for this latter point is non-experimental, it is also a replication of a finding established experimentally by other researchers. This point is also supported by the other chapters in this thesis, all of which depend upon the successful manipulation of a salient group identity (either gender or university student group membership) for the emergence of group processes.

There are significant theoretical implications of the studies described in this chapter. The results support the social identity proposition that content-related variables (i.e., personality, norms) are only meaningful to an individual to the extent that they correspond to salient self-categorisations. The evidence presented here therefore upholds a central principle of the social identity approach: the fluid and dynamic nature of the self. Other models that strive to identify features of the “core” self (usually, personality or genetic-based features) overlook the inherent variability and responsive nature of self-concept. For example, although thin-ideal internalisation may be a useful construct for determining, *on average*, who is vulnerable to the effects of a cultural norm endorsing thinness, to assume the invariance of this construct overlooks both the social-psychological factors involved in its development and the contextual moderators of an individual’s self-definition.

To emphasise the role of context in determining behaviour and its predictors is not to suggest that such variation is random, or to deconstruct the value of these predictors. Conversely, the social identity approach specifies very precisely how context will shape identity through three determinants: comparative fit, normative fit, and

perceiver readiness (Oakes, 1997). Having demonstrated the importance of identity salience for dieting intentions in three studies, these determinants of identity salience should be of great interest to researchers of eating behaviour. The logical extension of these findings is that to the extent that it is possible to accurately predict – and control – identity salience (and previous research has demonstrated that this is indeed possible, e.g., McGarty, et al., 1994) then it is possible to predict and control eating behaviour. A social identity analysis adds value to existing research by specifying why and how eating, like all other behaviour, is often an expression of identity. Consequently, changes in identity have implications for eating behaviour.

Each of the three studies described in this chapter has limitations. In Study 7, the inclusion of experimental variables unrelated to the prediction was a particular weakness. In Study 8, problems with the manipulation checks create doubt regarding the effectiveness of the identity salience manipulation. In Study 9, the small sample size reduced statistical power. However, despite these limitations, the results of the three studies are consistent with one another and with the theoretically-derived predictions regarding the context-dependence of the predictors of dieting intentions. Therefore as a program of research, these three studies provide cumulative evidence for Hypothesis 2 – that social identification moderates the predictive utility of both individual-difference variables (i.e., thin-ideal internalisation) and group-process variables (i.e., injunctive norms for thinness).

## Conclusion

In this chapter, three studies were presented in support of the social identity-derived hypothesis that the predictors of dieting intentions are context-dependent. Firstly, it was found in Studies 7 and 8 that thin-ideal internalisation, a widely-used variable in the literature, functioned as an individual-difference variable, predicting dieting intentions only when social identity was weak or when personal identity was



salient (H2a). Secondly, it was hypothesised that group norms for thinness would predict dieting intentions only when identification with the relevant group membership was strong (H2b). In keeping with previous research, this hypothesis was supported in Study 9. Implications of this research are discussed in terms of the malleability of disordered eating and the cumulative value of individual and group levels of analyses. Overall, this chapter has supported a central tenet of the social identity approach: as context influences how we see ourselves, it also influences our behaviour.

## **CHAPTER NINE**

# **TOWARD A SOCIAL IDENTITY INTERVENTION FOR DISORDERED EATING**

### **Abstract**

Psychological interventions for eating disorders often have lower success rates than for other mental illnesses such as depression and anxiety. In this final empirical chapter, we articulate and test the relevance of a social-psychological theory of social influence for eating disorder treatment. In Study 10, a sample of 34 participants who met criteria for either bulimia nervosa (BN), binge eating disorder (BED) or eating disorder not-otherwise-specified (EDNOS) watched either a pro-healthy weight message (delivered by a woman) or a control video with a quit-smoking message (delivered by a man). Participants' self-nominated ideal weight was significantly higher after watching the pro-healthy weight video. This main effect was qualified by an interaction with social identification, such that the influence of a pro-healthy weight message delivered by a woman was evident primarily among those who highly identified as women. The implications of this result are discussed, particularly for effective prevention and treatment of eating disorders.

## Literature Review

Previous chapters of this thesis have demonstrated that a social identity analysis offers a unique contribution to current understanding of disordered eating. As was argued in Chapter 2, the evidence suggests that disordered eating is a phenomenon affecting the general population to a greater or lesser degree, rather than a small percentage of “pathological” individuals. Nevertheless, there are individuals with severe, even life-threatening, eating disorders, and to equate all forms of disordered eating as synonymous would be a vast oversimplification. This chapter seeks to address the third hypothesis of the thesis by demonstrating that the social identity analysis previously outlined and tested applies to a disordered eating population.

### Efficacy of Current Eating Disorder Treatment Protocols

The “active ingredients” which make psychological therapy an effective intervention for mental illness remain disputed (Bergin & Garfield, 1994). Several approaches, however, have conceptualised therapy as a social influence process (Corrigan, Dell, Lewis, & Schmidt, 1980; Egan, 2009) wherein the therapist persuades the client (both overtly and covertly) to change their attitudes and behaviours. One treatment protocol which has embraced this approach has been Motivational Interviewing (Miller & Rollnick, 2002), an approach that emphasises that both readiness and resistance to change are a product of the interaction between client and therapist rather than comprising pre-existing states within the client. This approach remains theoretically under-developed yet can potentially be informed by the extensive body of research on the psychology of social influence. Particularly more recent social-psychological research is scarcely reflected in clinical theory and practice. Here, we examine how treatment efficacy for eating disorders might be enhanced by utilising modern social-psychological theory and empirical evidence.

To date, three quite distinct treatments have been shown to be effective for eating disorders. Cognitive-behavioural therapy (CBT) has been demonstrated to be effective for bulimia nervosa and binge eating disorder. Randomised controlled trials have suggested that, relative to waitlist controls, CBT reduces the frequency of bingeing and purging behaviours, leads to increased regularity of meals, and improves self-esteem (Brownley, et al., 2007; Fairburn, 2008). Interpersonal psychotherapy (IPT) has also demonstrated efficacy for bulimia nervosa and binge eating disorder (Fairburn, et al., 1993; Wilfley, et al., 2002), although some research suggests that CBT is faster-acting (Agras, et al., 2000). Finally, family therapy has received some empirical support as an effective treatment for adolescents with anorexia nervosa (Bulik, et al., 2007). These three treatments are quite dissimilar. CBT places an explicit focus on correcting cognitive distortions regarding eating, shape, and weight (Fairburn, et al., 2003), while IPT redirects focus towards the interpersonal context in which eating disorder symptoms occur (Weissman & Markowitz, 1994). Family therapy supports parents in re-feeding their child (Eisler, et al., 2007). In attempting to identify the shared “active ingredients” of these three evidence-based treatments, one apparent feature included in all three is the significant consideration of the value placed on eating and appearance by valued members of a person’s social network. In addition, like any psychological treatment, the development of a validating and trusting relationship between the therapist and client is critical.

Although these evidence-based treatments are of great value to health professionals and eating disorder sufferers alike, compared to other mental illnesses, success rates for eating disorder treatment are often low (Butler, et al., 2006; Grave, 2010). Treatment is plagued by drop-outs, and most notably, the ambivalence of clients towards changing the value placed on thinness (Vitousek, Watson, & Wilson, 1998). Researchers have suggested that a major barrier to effective treatment for eating

disorders is that sufferers hold beliefs, especially regarding thinness as an ideal, that are particularly resistant to cognitive restructuring efforts by their treating professional (Williamson, Muller, Reas, & Thaw, 1999). Therefore it is our contention that *enhancing the influence of clinicians* working with eating-disordered populations is an important strategy in improving the outcomes of eating disorder sufferers.

### **The Social Identity Model of Social Influence**

A dominant social-psychological model of social influence is that derived from the social identity approach. This approach takes as its starting point the observation that self-concept is not defined purely in terms of personality or other individual-level characteristics (e.g., myself as extroverted, myself as thin) but also in terms of *social categories* (e.g., myself as a woman, myself as a university student [Turner, Hogg, Oakes, Reicher, & Wetherell, 1987]). When a person defines themselves in terms of particular social category (i.e., it is *salient* or psychologically prominent), the norms, attitudes and behaviours of that group become self-relevant (Turner, 1991). Consequently, the perception of shared group membership (e.g., “we women”) enhances social influence. That is, fellow members of groups which are important to us (in-group members) are seen as valid and relevant sources of information about subjective reality. Out-group members are simply not seen as providing pertinent information about who “we” are and what “we” do. In domains as diverse as facial mimicry (Yabar, Johnston, Miles, & Peace, 2006), humour (Platow et al., 2005), smoking (Schofield, Pattison, Hill, & Borland, 2001) and pain perception (Platow et al., 2007), influence has been demonstrated to be enhanced when the source of the message and the recipient share a psychological group membership. For example, Mackie, Worth and Asuncion (1990) found that college students’ were more persuaded by a strong (compared to a weak) message when delivered by an in-group member (a fellow University of California, Santa Barbara student). When the source was out-group (from

another university), participants were not persuaded by either the strong or weak messages. This suggests that individuals are not indiscriminately more favourable in evaluating influence attempts by in-group members, but rather attend more closely to the content of their messages. That is, messages from in-group members are perceived as *self-relevant*, and this prompts people to process the influence attempt more thoroughly.

Although originally focused on issues such as prejudice, leadership and stereotyping (Brown, 2000), over the last decade the social identity model of social influence has been increasingly applied to health behaviours in general and eating behaviour in particular. Oyserman, Fryberg and Yoder (2007), found that members of ethnic minorities in the United States are more motivated to eat unhealthy foods when they perceive these behaviours to be consistent with their ethnic group's social norms. In a similar vein, Guendelman, Cheryan and Monin (2011) demonstrate that immigrants' motivation to "fit in" with American culture causes them to display behaviours that they perceive to be prototypical of that group. In this case, prototypical behaviours are likely to be those placing an individual at high risk for the development of obesity (e.g., eating fast food). Research has also found that a person's desire to engage in health behaviours such as reducing salt or alcohol intake is dependent upon the congruency between such behaviours and their currently salient identity (e.g., university student vs. British national, [Tarrant & Butler, 2011]).

Therefore there is a growing body of work that suggests the relevance of a social identity model of social influence to eating behaviour. However, as yet no research has been conducted with an eating disordered population. A social identity approach suggests that by enhancing the perception of shared group membership between the eating disorder sufferer and the message source, a message is more likely to be perceived as self-relevant and therefore attended to closely. The message is also more

likely to be persuasive (Mackie et al., 1990; Turner, 1991). Theoretically, there is no reason to expect any difference in the influence process between eating-disordered individuals and the general population. However, it has been noted that eating-disordered individuals tend to rigidly define their identity in terms of eating, shape and weight (Fairburn, 2008). The practical challenge, therefore, is selecting an identity which has potential self-relevance to an eating-disordered individual and can potentially be shared by treatment professionals. In this experiment, gender identity was selected and made salient to participants, as we reasoned that this identity is likely to remain meaningful even among the most severely unwell eating disorder sufferers.

We sought to use a communication that has already been demonstrated to be effective in influencing the general population to engage in more healthy eating behaviour. Therefore, our active influence condition utilised the pro-healthy weight video described in Chapter 6 and our control health promotion message was the anti-smoking video also described in Chapter 6. As the pursuit of thinness regardless of health consequences appears to be a central and rigid construct across all forms of eating disorder (Thompson & Stice, 2001), this was chosen as the target for our health promotion message. We measured the impact of the messages on participants' nominated ideal weight.

The first and primary prediction for this study was that participants who viewed an in-group member providing a pro-healthy weight message would nominate a higher (more realistic, healthier) ideal weight than participants who receive a control message. For ethical reasons, it was not considered appropriate to present a pro-thinness message to an eating disordered population. Similarly, an out-group member presenting a pro-healthy weight message is, theoretically, more likely to provoke a reactance effect and counter-conformity (Turner, 1991) – an outcome that would also be unethical. In order to test the proposed mechanism for this effect, we secondly predicted that the results



would be moderated by social identification, such that individuals who strongly identified as female would be particularly influenced by the female speaker's message. Specifically, we expected high identifiers to nominate a higher mean weight after viewing the health promotion message than low identifiers who saw the same message.

## **Method**

### **Participants and Design**

Participants were recruited as part of the general female population for a study of "Women's Attitudes to Health Media" (the pilot and Study 5 in Chapter 6). In order to be eligible for the current experiment (Study 10), participants responded to screening items in a manner indicating possible eating disorder. That is, participants did not need to self-identify as having an eating disorder in order to sign up for the study, rather, they were identified within a general sample using the screening tool described below. Participants were recruited through advertising in online forums and networks, as well as on-campus advertising.

Forty-three female participants were randomly assigned to one of two conditions (Active vs. Control health promotion video). The final sample characteristics are described in the Results section.

### **Materials and Procedure**

**Health screening questionnaire.** Prior to beginning the experiment proper, participants completed a 13-item forced-choice health questionnaire, the goal of which was to identify participants with clinically severe eating disorder features. Eleven of the items were distractor health questions (e.g., "Are you a smoker"). As outlined in Chapter 6, two screening items from the Patient Health Questionnaire (PHQ; Spitzer, Kroenke, Williams, & Group, 1999) were embedded within the general questionnaire: "Do you often feel that you can't control what or how much you eat?" and "Do you

often eat, within any two-hour period, what most people would regard as an unusually large amount of food?" Participants who answered "Yes" to both questions were directed to the full PHQ eating disorder screening tool, which is based on the diagnostic criteria for bulimia nervosa and binge eating disorder (American Psychiatric Association [APA], 2000). Participants who endorsed at least three of the items in the screening tool were eligible for Study 10. Participants were asked for demographic information at this stage, including height and weight. Any participants whose self-reported height and weight resulted in a body mass index ( $BMI = kg/m^2$ ) of less than 17.5 were also eligible for Study 10 on the basis of possible anorexia nervosa.

**Stimulus videos.** Participants were randomly assigned to one of two conditions, each of which presented a health promotion video. In the Active condition, participants viewed a seven-minute video in which a female health professional gives a pro-healthy eating (anti-thinness) message<sup>14</sup>. This included information regarding the dangers of low weight (e.g., "Being underweight affects every organ in your body, and especially places extra strain on the heart") as well as information about the characteristics of a healthy diet (e.g., "Eat lots of fruit and vegetables. These foods contain almost all the vitamins and minerals your body needs"). In the Control condition, participants viewed a seven-minute video clip in which a male doctor discusses strategies to quit smoking.

**Measures.** Prior to the health promotion video, participants completed an 11-item social-identity questionnaire adapted from Leach et al. (2008), although three items were removed from the 14-item scale due to poor fit with the social category of women. Participants responded to items such as, "I am pleased to be a woman" on a seven-point scale, anchored with "Strongly Disagree" to "Strongly Agree." The identification scale

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<sup>14</sup> These videos were identical to those described in Chapter Six.

acted as a salience manipulation for participants' female identity as well as providing a measure of participants' identification as a woman.

Following the health promotion video, participants completed the Dieting Intentions Scale (DIS) and the Contour Drawing Rating Scale (CDRS). The CDRS is a validated measure of body image (Thompson & Gray, 1995). Participants are presented with 9 line-drawn figures of female figures ranging from well below a healthy weight (1) to obese (9). The DIS and CDRS were included to provide supplementary diagnostic information to lend further support to the eating disorder status of the sample (see the Results section). The DIS was not utilised as a dependent variable in this study. As discussed in Chapter 5, the DIS is not suitable as an indicator of improvement in disordered eating symptomatology as it measures both healthy *and* unhealthy dieting.

Finally, the participants were asked to indicate their ideal weight in kilograms, which comprised the key dependent variable. This was theorised to be a sensitive measure of state fluctuations in the extent to which participants idealised and desired thinness, a key cognitive distortion found in the eating disorders (Fairburn, 2008).

At the end of the experiment, participants received a debriefing message that warned them that their responses in the study indicated unhealthy eating behaviours, and encouraged them to seek treatment.

## Results

Participant data were inspected in order to provide a provisional classification of the nature of participants' eating disordered problem. Specifically, participant data on the eating disorder-PHQ items, DIS items, CDRS, and BMI were considered relative to the *DSM-IV-TR* (APA, 2000) criteria for anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED) and eating disorder not-otherwise-specified (EDNOS). Nine participants were excluded from the experiment due to insufficient information

regarding the presence of an eating disorder. Predominantly, these were individuals with low BMI ( $< 17.5$ ) who did not report body dissatisfaction or loss of eating control. Therefore 34 participants were retained for analysis. They ranged in age from 18 to 58 ( $M = 23.35$ ,  $SD = 8.82$ ). Mean BMI was 25.78 ( $SD = 9.13$ ). Overall, 16 participants were classified as having BN and the remaining 18 were classified as EDNOS. The latter participants all endorsed at least three diagnostic eating disorder symptoms but did not meet strict criteria for AN or BN. This category included six participants with BED. The remainder either reported bingeing and purging less often than twice per week for at least three months, or reported severe food restriction but whose BMI was above 17.5 (note, the majority of these participants would be classified as having BN or AN under the proposed *DSM-5* criteria, [APA, 2011]).

*T*-tests confirmed that participants in the two conditions did not differ significantly on mean BMI, age or social identification ( $ps > .10$ ). Chi-square tests confirmed that there were no significant differences between conditions in eating disorder diagnoses. However, given that qualitative differences between the eating disorders exist in weight history and prognosis, this variable was included as a covariate in the analyses that follow.

The mean score on the DIS was 4.60 ( $SD = 1.02$ ), which is somewhat higher than in normal samples (see Chapter 5). On the CDRS the mean was 6.23 ( $SD = 1.88$ ), also somewhat higher than normal samples (Thompson & Gray, 1995). On average, participants nominated an ideal weight of 60.15 ( $SD = 8.88$ ), corresponding to a mean BMI of 21.32. Participants identified with their gender category in the sample overall, with a mean score of 5.05 ( $SD = 0.97$ ) on the social identification scale, which is significantly higher than the mid-point of the scale  $t(33) = 6.47$ ,  $p < .01$ .

A one-way analysis of covariance was conducted to assess whether the in-group member's pro-healthy weight message was successful in persuading eating-disordered

participants to nominate a higher ideal weight. The effect was significant,  $F(1,30) = 7.46, p < .05$ . Specifically, participants who viewed the pro-healthy weight message from an in-group member nominated a significantly higher ideal weight ( $M = 63.75, SE = 2.08$ ) than participants who viewed a control (anti-smoking) message ( $M = 56.94, SE = 1.96$ ). This analysis remained significant when obese participants (seven in total) were removed from the analysis ( $F(1,25) = 5.24, p < .05$ ), when participant BMI was entered as a covariate ( $F(2,32) = 3.54, p < .05$ ) and when eating disorder diagnostic category was removed from the analysis ( $F(1,32) = 5.68, p < .05$ ).

To test the second prediction, that the influence of the in-group member would be moderated by social identification as female, a regression analysis was conducted. Predictors were eating disorder diagnosis, message condition (both contrast coded<sup>15</sup>), social identification as female (centred) and their interactions. Overall, this model was significant,  $F(11,22) = 3.72, p < .01$ . The interaction between condition and social identification was significant,  $t(33) = 2.42, p < .05, \eta^2 = .09$ . As can be seen in Figure 12, the difference between conditions in ideal weight was greater for participants who highly identified as a woman. In keeping with the social identity approach, there is no effect of social identification for the control group, but only when an in-group member gave an anti-thinness message. For every increase of one degree in identification (e.g., from "Slightly Agree" to "Agree"), participants viewing a pro-healthy weight video nominated a weight that was 13.70 kilograms higher. This slope of  $\beta = 14.46$  was significant ( $p < .05$ ). In contrast, the slope for the control video ( $\beta = -2.22$ ) was not significantly different from 0 ( $p > .10$ ). Thus the second hypothesis was confirmed in that social identification as a woman moderated the effectiveness of the health promotion message.

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<sup>15</sup> Eating disorder diagnosis was contrast-coded on two vectors for the analysis. The first vector was -1 EDNOS, -1 BN, 2 BED and the second vector was -1 EDNOS, 2 BN, -1 BED.

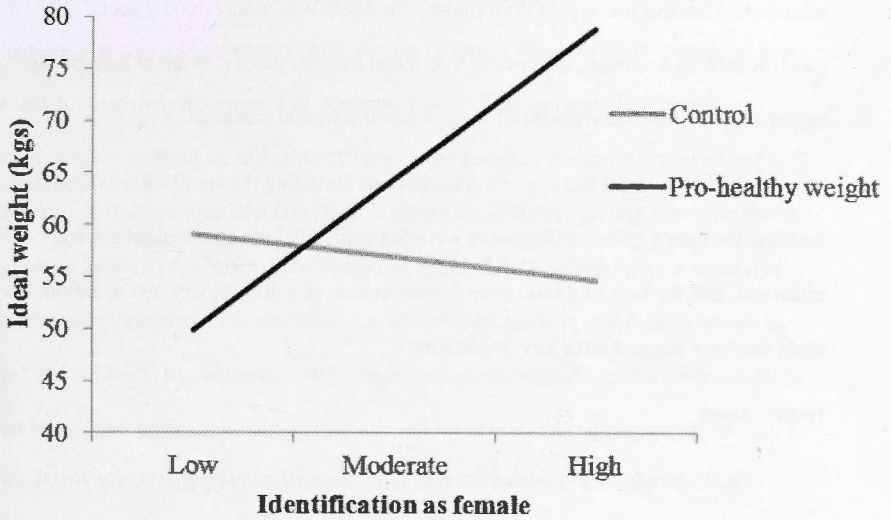


Figure 12. The influence of a pro-healthy weight message from a female is moderated by participants' social identification as female.

## Discussion

Study 10 has demonstrated that a pro-healthy weight message from an in-group member is effective in increasing the ideal weight of eating-disordered participants, relative to a control message. Furthermore, this effect was moderated by social identification as a woman, suggesting that social identity processes are at least partly responsible for the effectiveness of the pro-healthy weight message.

This experiment has important limitations including the small sample size, the fact that the eating disorder diagnoses were not confirmed via a structured clinical interview, and the lack of a follow-up. Nevertheless, as a preliminary investigation, the study findings suggest three key implications.

### Implications

Firstly, Study 10 provides evidence that the social identity analysis of social influence described in this thesis is not limited in its applicability to normal populations. Rather, individuals with clinically disordered eating who identify as women are responsive to health messages regarding the pursuit of thinness delivered by a woman (i.e., to in-group communications about eating, shape, and weight). It has sometimes been argued that individuals with an eating disorder differ qualitatively from individuals who experience non-clinical levels of unhealthy dieting or body dissatisfaction (Bunnell, Shenker, Nussbaum, Jacobson, & Cooper, 1990). In particular, this argument is made about women with severe anorexia nervosa, whose poor prognosis and chronicity of illness often prompt clinicians to attribute the illness to neurobiology (Kaye, et al., 2005). This study did not include women with anorexia nervosa, and so cannot speak to this claim. However, for other eating disorders, this experiment provides evidence that social influence processes that have been extensively studied among general populations are also evident in a clinical population.



Secondly, this experiment demonstrates that health professionals are capable of influencing the way eating-disordered individuals conceptualise and value thinness. As this is one of the key goals of psychological therapy for eating disorders (Wilson, 2005), strategies for enhancing this influence are vitally important and warrant further attention. The social identity approach provides a strong theoretical and empirical basis for articulating such strategies. For instance, this analysis can posit that health professionals will be more influential to the extent that they portray themselves as *similar* to disordered individuals on valued dimensions. By suggesting that the influence process is moderated by shared identification, this experiment highlights a *malleable dimension* of therapeutic effectiveness. In other words, because self-categorisation is fluid and contextually responsive, differences between eating-disordered individuals in their level of identification with a source of influence (i.e., their therapist) should not be reified as fixed aspects (such as personality traits) but rather be the target of intervention.

To extend upon this argument, this research has found that females with eating disorders are influenced by a female health professional to the extent that they identify as female. However, it would be a misinterpretation of this finding to infer that men are therefore less effective clinicians for such patients. Much research has demonstrated that similarity on categories such as age, gender and ethnicity has little impact on clinical effectiveness (Atkinson & Schein, 1986; Sterling, Gottheil, Weinstein, & Serota, 2001), presumably because there are many other ways in which clinicians can and should build a sense of shared identity with their patients. Much of the clinical literature on micro-skills and rapport-building (e.g., empathy, open body language, and inclusive, non-judgemental language) suggests that a clinician's interpersonal style is a major strategy for fostering a sense of similarity, trust and understanding (Kuntze, van der Molen, & Born, 2009; Sharpley, Halat, Rabinowicz, Weiland, & Stafford, 2001). A social identity

analysis would suggest that this may constitute the emergence of a group-based process, given that categorisation is based on the perception of features including shared goals (Turner et al., 1987). Although the category may be less easily identified and named than one based on demographic characteristics, this does not undermine its potency. The implication of this research is *not* that there must be objective similarities between clinicians and patients (although these may make establishing rapport initially easier), but rather that fostering a client's perception of shared group membership with the clinician on valued dimensions will enhance influence.

Finally, this study indicated that there is value in trialling eating disorder treatments that augment existing therapies to include social-identity informed interventions. Specifically, by enhancing the perception of shared group membership between the source (i.e., the therapist) and the perceiver (i.e., the individual with an eating disorder), the actual therapeutic content is more likely to be attended to and subsequently persuasive.

### **Future Directions**

Although the underlying theory differs substantially between existing treatments for eating disorders and the social identity approach, many of the suggested interventions are similar. In other words, although the theorised mechanism of action may differ, these approaches are not in conflict regarding several strategies currently used by treating professionals, such as building rapport in the therapeutic relationship and challenging the emphasis placed on eating, shape and weight within the patient's social networks. However, the unique contribution of a social-identity informed intervention would be the emphasis on fostering self-defining identities that do not endorse unhealthy eating behaviours. It remains for future research to both explicate the practical strategies that may achieve this goal, and to assess the efficacy of interventions that are modified to include elements suggested by a social identity approach.

## Conclusion

This experiment found that women with an eating disorder are influenced by a pro-healthy weight message from a woman to the extent that gender identity was currently important in their self-definition. This finding has implications for the theoretical analysis of disordered eating, as it suggests that eating disorders are best conceptualised as a continuum, differing primarily in severity rather than form. Furthermore, this finding has implications for how currently available treatment protocols for eating disorders might be improved, and suggests that clinicians may be able to enhance their influence through strategies informed by the social identity approach.

## CHAPTER TEN

### GENERAL DISCUSSION

#### Review of Thesis Aims and Objectives

This thesis set out to articulate a social identity analysis of social influence in disordered eating behaviour. It was observed that unhealthy eating behaviours, both clinical and subclinical, are becoming more prevalent in the broader society. The existing evidence suggests that this trend is, at least in part, due to a social-psychological component to the aetiology of eating pathology: specifically, social influence. Previous attempts to account for social influence in disordered eating can be broadly categorised as sociocultural or individualistic, both of which have significant limitations. It was argued that a social-psychological model of social influence, in particular, a social identity approach, is able to address many of the shortcomings of existing work by articulating a mechanism through which sociocultural and individualistic levels of analysis interact. In other words, the existing theoretical framework of the social identity approach is able to account for how broad-scale societal phenomena are incorporated into an individual's psychology and subsequently expressed in that individual's behaviour. In order to test the applicability of this framework in the eating domain, three hypotheses were derived directly from the social identity approach. These were:

*Hypothesis 1.* Eating behaviour will be influenced primarily by sources that share a psychological group membership with the perceiver.

*Hypothesis 2.* The predictors of eating behaviour will differ depending on which identity is currently self-defining for an individual.

- a. Individual attitudes to thinness will predict dieting intentions when personal identity is salient.

- b. Group-based norms for thinness will predict dieting intentions when the relevant social identity is salient.

*Hypothesis 3.* Among individuals with an eating disorder, the perception of shared group membership with the source of a social influence attempt regarding appropriate weight will predict the message's effectiveness.

In designing research to test these hypotheses, it became apparent that existing measures of dieting were not suitable, and therefore the first empirical chapter presented the development and validation of a new instrument, the Dieting Intentions Scale. The four subsequent empirical chapters provided experimental test of the three hypotheses.

### **Summary of Empirical Findings**

Dieting is a behaviour that predicts both weight gain and onset of an eating disorder, making it an ideal dependent variable for this research project. In Chapter 5, the Dieting Intentions Scale was presented to serve this purpose, an instrument designed to assess future intentions to engage in dieting behaviours. Across four studies and 741 participants, substantial evidence was provided for the psychometric properties of the Dieting Intentions Scale. The 7-item scale had excellent internal consistency and a stable one-factor solution. Convergent validity was demonstrated, with moderate to strong correlations found between the Dieting Intentions Scale and theoretically-related concepts such as body dissatisfaction, Body Mass Index and overvaluation of eating, weight and shape. Evidence for discriminant validity was also provided, with the Dieting Intentions Scale unrelated to self-esteem or social desirability. Most importantly, however, the Dieting Intentions Scale was found to have predictive utility, as it significantly predicted dieting behaviours over the following three months as well as current behaviours consistent with dieting (e.g., clicking on a weight-loss weblink). Overall, the empirical work presented in Chapter 5 represents a substantial contribution to the literature by developing a reliable and valid measure of dieting intentions.

Hypothesis 1 was tested in Chapter 6 and 7. In Chapter 6, participants watched a health promotional video that advocated either a pro-thinness or pro-healthy weight message (the content of which was validated in a pilot study). In the main experiment, the message was delivered by either a male or female, in a context in which gender identity was made salient. There was also a fifth condition in which participants watched a control video about smoking cessation. Consistent with Hypothesis 1, results confirmed that the messages delivered by an in-group member (female) were more effective at influencing participants' health intentions and healthy-eating related behaviour (clicking on a healthy eating weblink). Unexpectedly, both sources were equally influential for dieting intentions. Chapter 7 investigated Hypothesis 1 in a different way, making use of a different group membership (university affiliation) and using actual food intake as the dependent variable. Participants encountered a confederate who set a norm for either low or high popcorn consumption, and who was either an in-group (fellow ANU student) or out-group (CIT student) member. In a control condition, no confederate was encountered. Consistent with Hypothesis 1, participants were influenced by the consumption norm only when the confederate was an in-group member, and only in these conditions did participant food intake differ significantly from the control condition. Taken together, the experiments presented in these two chapters provide strong evidence supporting Hypothesis 1: eating and eating-related behaviour is influenced primarily by those perceived as in-group members.

Hypothesis 2 was tested in three experiments presented in Chapter 8. A popular predictor of disordered eating, thin-ideal internalisation, was found to only predict dieting intentions when either gender identification was weak (Study 7), or when personal identity was salient (Study 8). This provides evidence for Hypothesis 2 a), and suggests that thin-ideal internalisation is better conceptualised as a personality construct than the internalisation of a societal norm. In Study 9, which was a replication of

previous research, it was found that group norms regarding thinness were only predictive of dieting intentions among high identifiers (in this case, with gender), providing evidence for Hypothesis 2 b). These results speak to the importance of contextual factors: in so much as they shape how we see ourselves, they also shape our eating behaviours.

Hypothesis 3 was tested in Chapter 9, which used a sample of females with clinically severe disordered eating. The design paralleled Chapter 6, although for ethical reasons these participants were not shown a pro-thinness message. The results indicated that a pro-healthy weight message from an in-group member was more influential (i.e., led to the nomination of a higher ideal weight) than a control video, particularly for strong identifiers with the female category. This provides evidence for Hypothesis 3, and suggests that the social identity approach holds relevance for disordered eating across the continuum of severity.

## **Implications**

### **Theoretical Implications for Social Psychology**

The empirical studies of this research program have therefore achieved three key outcomes that reflect on the social-psychological theory in which this thesis is grounded. To summarise, these are 1) the demonstration that social influence in eating behaviour is *made possible* by shared psychological group membership; 2) the demonstration that the predictive utility of both group norms towards thinness and personal attitudes towards thinness for dieting intentions is moderated by context via its impact on salient identity; and 3) that eating disordered individuals are similarly influenced by in-group members with whom they have a strong shared identity.

It has been asserted by social identity theorists that all perception and behaviour is inherently social (Turner & Oakes, 1997), and that our social identities are enacted



throughout our daily life and reflected in the decisions we make (Abrams, et al., 1990). However, despite this claim of the broad applicability of the theoretical principles, social identity research has primarily investigated phenomena that are overtly social in nature, such as racism, intergroup conflict and collective action (Brown, 2000). The true scope of this approach hence remains mostly untested. The articulation and empirical test of a social identity analysis of disordered eating behaviour therefore represents a significant expansion of the domains in which the social identity approach can claim to be applicable. In demonstrating that the social identity approach has bearing on eating behaviour, a field that is traditionally the domain of clinical psychologists, this thesis has provided evidence that the psychological processes identified by the theory are truly fundamental to human perception and action. That is, more than simply a model of group processes, the social identity approach provides insight into the nature of self-concept. It is these more ambitious aspects of the social identity approach that find support in the current thesis.

### **Theoretical Implications for Clinical Psychology**

**The reasons for increased rates of disordered eating.** A central question posed by this thesis is: why are disordered eating behaviours increasing at a population level? More precisely, this thesis aimed to articulate the interplay between sociocultural and individualistic explanations for this phenomenon by experimentally testing predictions of the social identity analysis of social influence. In this section, I will summarise the answers offered by the thesis to this question.

As discussed in the literature review in Chapter 2, the most convincing accounts of the reason for societal-level patterns in eating pathology come from a sociological tradition of research. These explanations point to changes that have occurred in the food environment (e.g., hyperavailability of palatable food, Ulijaszek & Lofink, 2006) and in culturally-defined value notions of attractiveness (e.g., an emphasis on

thinness, Wiseman, et al., 1992) as responsible for the obesity epidemic and rising eating disorders, respectively. However, Chapter 2 also outlined a critique of such approaches for 1) their typically correlational or descriptive research designs, 2) their inability to explain variation between individuals and 3) the lack of a psychological mechanism through which sociocultural phenomena may affect individuals. The theoretical and empirical work of this thesis goes some way toward addressing these limitations of the sociocultural explanations for disordered eating, as outlined below.

Firstly, the evidence accumulated in support of the social identity approach in this thesis has had a large experimental component. As such, we can infer causal links between the independent variables investigated in the research and disordered eating behaviour. This thesis has empirically established the causal role of several constructs typically invoked in the sociocultural literature, in particular social norms. Secondly, the social identity approach advances sociocultural models by allowing for individual variation. Although the theory is fundamentally social-psychological, it nevertheless is able to incorporate evidence of individual differences (Turner & Onorato, 1999). This is possible, for instance, through the acknowledgement of the role of personal identity, and due to individual differences (both random and systematic) in identity strength or salience. Thirdly, and perhaps most importantly, the social identity approach describes a single mechanism through which both sociocultural and individual characteristics may affect individuals: contextually-determined self-categorisation. Therefore, in light of empirical data presented in this thesis, the sociocultural explanations for the increase in disordered eating are, in fact, more persuasive.

However, the social identity approach modifies the sociocultural explanations for disordered eating in a subtle but important way. The social identity approach would state that broad-scale societal phenomena such as an obesogenic environment or a thin ideal come to be represented in the *norms* of particular social categories (e.g. "Us

women value thinness,” or “Australians love their meat pies”). It is therefore likely that although these risk factors exist in “society” in a general sense, they are also encapsulated and endorsed by more specific groups. The social identity approach is then able to articulate precisely how and when these norms will come to influence individual behaviour – as the direct result of self-categorising as a member of a group that endorses a particular norm. It is this latter process of social influence that has been empirically demonstrated in this thesis.

**Conceptualisation of pathology.** The success of this research program suggests that the assumptions and underlying ideological framework in which the social identity approach is situated has relevance for clinical psychology. In particular, the biomedical model of disease is not consistent with the findings of this thesis. Psychiatrists and clinical psychologists alike have long conceptualised disordered eating, along with most other forms of pathology, as the manifestation of underlying biological or psychological disease-type processes (Suls & Rothman, 2004). Individuals who present with clinically severe eating disorders are assumed to differ in a fundamental way from people without a formal disorder (Bunnell, et al., 1990). This thesis has presented evidence that suggests that this assumption does not hold for disordered eating. All of the key results of the thesis are inconsistent with a biomedical model. For example, in Chapter 5, the utility of a future-oriented, behavioural measure of disordered eating was demonstrated. This is in contrast to a biomedical model of pathology, which would instead give primacy to stable individual-difference measures of disordered eating, preferably with a plausible biological mechanism. Chapters 6 and 7 demonstrated the malleability of dieting intentions and eating in response to social influence. A biomedical model of eating pathology is inconsistent with strong external influences over behaviour. In Chapter 8, the context-dependence of predictors of dieting intentions was demonstrated. Behaviour that is caused by an internal disease-like mechanism (as posited by the

biomedical model) would not be responsive to the effects of context. Most especially, Chapter 9 provided evidence for the amenability of clinically severe disordered eating to social influence. This undermines a fundamental premise of the biomedical model, i.e., that there is something qualitatively different and “abnormal” about the psychological functioning of a person with mental illness (American Psychiatric Association, 2000). Hence an implication of the present thesis for clinical psychology is that it is time to consider alternative models of pathology (particularly for eating behaviour).

The social identity approach does suggest two alternative models of pathology that might replace a biomedical model. The first, and most drastic, is a model that conceptualises all knowledge as socially constructed. That is, the very framing of behaviour as pathological in itself is a subjective value-based judgement, rather than an absolute. However, this post-structuralist framework has significant disadvantages, such as undermining existing efforts at health promotion and intervention, and being broadly inconsistent with modern evidence-based medicine.

An alternative is a model of pathology that represents a compromise between existing positivist medical frameworks and the social constructivist alternative. That is, in line with the approach taken in this thesis, there may exist patterns of behaviour that can be defined on the basis of external (“objective”) criteria as maladaptive. This may be due to their consequences for physical and mental health, their financial or social costs for a society, or simply because they are ineffective at meeting their intended goal. Most importantly, however, the origin of this maladaptive behaviour may not be at the level of the individual. Two examples of such culturally-bound “disorders” are Chinese foot-binding and nuclear weaponry. Both have negative consequences for individuals and society, but neither can be said to result from individual pathology (Boyden, 2004). I argue that many manifestations of poor health, and most particularly obesity and eating disorders, are similarly the result of pathology *within the content of social*

*categories*. This notion of pathology is obviously speculative; however, it is wholly consistent with the literature review and empirical data presented in this thesis.

This reconceptualisation of pathology coincides with a growing discontent with the upcoming version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V). Concerns have been raised about revision to the manual, including the proposed conceptualisation of eating disorders (Eddy, et al., 2008; Fairburn, et al., 2007). Although the fifth edition will add Binge Eating Disorder as a formal category for diagnosis, it is otherwise conservative in its revisions, and does not incorporate growing evidence for the transdiagnostic model of eating pathology (American Psychiatric Association, 2011). The American Psychiatric Association (APA) has come under criticism for the increasingly all-inclusive definitions of pathology, for making use of arbitrary cut-off points of defining disorder and for lowering standards of reliability (Frances, 2012; Kraemer, Kupfer, Clarke, Narrow, & Regier, 2012; Waters, 2011). A common theme in these criticisms is a concern that normal variation is being “medicalised”. Therefore, there are many within the clinical sphere whose calls for change coincide with the alternative conceptualisation presented in this thesis.

For clinical researchers who aim to pursue this alternative conceptualisation of pathology, there are several implications to be taken from this thesis. The first is that the traditional *measures* of pathology, which are theoretically grounded in a biomedical model of pathology, are often inadequate. In Chapter 5, this thesis demonstrated the value of developing malleable, behavioural, and future-oriented indicators of individual risk. The Dieting Intentions Scale is an example of how such measures may retain many of the advantages of traditional scales (e.g., good internal consistency, test-retest reliability, predictive validity), and yet have greater utility in both clinical and research settings due to their potential for change. An additional contribution of this thesis has been providing further evidence for the continuity of the disordered eating construct,

which is best conceptualised as varying between individuals in severity, rather than in its fundamental features. A final, and optimistic, message for clinicians operating in a non-biomedical paradigm is that even severely pathological behaviours are not fixed. If a seven-minute health promotion message can effect a significant change in goal weight for women with an eating disorder (as per Chapter 9), this suggests many undiscovered opportunities for behavioural change reside in a social identity approach to disordered eating.

**The importance of structural social-psychological variables.** As mentioned previously, one of the theoretical contributions of this thesis is attention to the mechanism through which individual-level outcomes are shaped by societal- or social-level variables. Categorisation of the self is contextually-responsive, and may shift to encompass a variety of different social groups. Through this process, the normative content of such groups (e.g., attitudes toward eating and appearance) is represented psychologically and internalised as self-relevant. Thus individual behaviours are influenced by social phenomena. This thesis provided evidence for this process in disordered eating behaviour, however, there is no reason to believe that this is a special case. Rather, it is likely to be generalisable to any health problem (indeed, any behaviour) in which there are both individual- and group-level predictors at work. This has significance for health research in general, as the theoretical question of *how* social factors influence individuals is often neglected. For example, despite the clear statistical links between socioeconomic status and smoking uptake (Banks, Marmot, Oldfield, & Smith, 2006), or between job satisfaction and heart disease (Winkleby, Jatulis, Frank, & Fortmann, 1992), rarely has the nature of these relationships been addressed. The implication of this thesis, then, is that structural social-psychological variables – particularly social identification and shared group membership – play an important role in explaining the role of social variables in shaping health behaviour.

## Practical Implications

Perhaps the most concrete implication of the research is the provision of a new measurement tool (the Dieting Intentions Scale) which can be used in clinical and research settings alike to provide a more accurate assessment of future likelihood of engaging in dieting behaviours. Given that dieting behaviours predict both weight gain over time and increasingly disordered eating (Lowe & Timko, 2004), the development of this instrument is an important outcome of the thesis in its own right. Unlike existing instruments which measure a past individual trend, the Dieting Intentions Scale has utility in intervention trials and experimental research as a dependent variable. It may also be useful in tracking improvement in a clinical setting.

The current research program also has direct relevance for disordered eating interventions. An example is the demonstration of the importance of shared group membership (Chapters 6 and 7). This indicates a strategy for both enhancing the effectiveness of interventions (by attending to the relationship between the audience and source), and also a novel strategy for identifying high-risk individuals and better targeting prevention efforts. The results of Chapter 8 imply that disordered eating might be prevented either through modifying the content of social identities (i.e., norms), or through the bolstering of identities with anti-thinness norms. Finally, by showing the relevance of these principles for a clinical population (Chapter 9), the thesis suggests that these concepts are relevant not only at the prevention stage but also in treating persons with existing eating disorders. However, significant research remains to be done to provide guidance to health professionals on how to implement social identity-based interventions.

Finally, a vital contribution of this thesis is in the specification of *malleable* predictors of disordered eating. As mentioned previously, to date the vast majority of research on both obesity and eating disorders has been concerned with genetics,



metabolism and/or personality (Barness, et al., 2007). A disturbing consequence of this is the neglect of research into variables that are amenable to intervention, either at a prevention or treatment stage. By contrast, the social-psychological approach taken in this thesis suggests several variables that may be practically useful in their application to interventions for disordered eating. Most obviously, the social identity principles of enhancing social influence could be utilised in research expanding upon the social identity intervention with a clinical population presented in Chapter 9. Therefore, although this thesis has not focused on the development of disordered eating interventions, it has nevertheless contributed to both prevention and treatment efforts in a variety of ways.

### **Strengths and Limitations**

Two important strengths of the research program should be noted. Firstly, the strong theoretical grounding of this program allows inference beyond the particulars of any one experiment. Philosophers of science have noted that initial assumptions are an essential part of logical reasoning and positivism (Popper, 1963; Schlenker, 1974). However, in the discipline of psychology it is common to encounter seemingly atheoretical experimental research. Instead of this being a “bias-free” way to seek the truth, it is instead the case that such research – and potentially such researchers – are simply silent on exactly *which* assumptions are being made and their implications. By contrast, this thesis is explicit about the theoretical framework used and its assumptions. As well as scientific honesty, a further benefit of using an established and well-validated theory is that it is bolstered by vast accumulated evidence beyond that presented in this thesis. This allows greater confidence in extrapolating from the results both to the practical concerns of disordered eating interventions and also to other health issues.

Additionally, a strength of this thesis has been the focus throughout on behavioural dependent variables. Although this creates an additional methodological burden on researchers, it also provides confidence in the results as indicative of “real life” outcomes. In the case of eating, a domain where a person’s behaviour is often out-of-sync with his or her aspirations, it is particularly important to ensure that the results do not rely on the insight of participants to accurately self-report internal states. To further this goal of behavioural measures of eating behaviour, Chapter 5 developed the Dieting Intentions Scale, an instrument with many of the strengths of self-report measures (e.g., ease of administration) while remaining behaviourally-oriented and predictive of future behaviour. In addition, Chapter 7 made use of food intake as a dependent variable. Taken together, this focus on behaviour strengthens the empirical findings of the thesis and also provides a means through which other researchers may similarly orient their measurement towards behaviour.

A number of limitations of the research program presented in this thesis can be identified. The first point relates to the sample used throughout the empirical studies, which was predominantly young, female, well-educated and Anglo-Australian. This was due to convenience sampling in a university setting. Therefore the degree to which generalisation is possible warrants consideration. In most of the studies described in Chapters 5-9, the descriptive statistics reported (e.g. means of the Dieting Intentions Scale) are likely to reflect the sample used, and may be unrepresentative of the general population. However, the psychological processes that are hypothesised and tested throughout this research program concern the relationship *between* variables (e.g., between social identification, social norms and behaviour), and these processes are theorised to be applicable to all persons. In fact, the thesis tested the limits of generalisability by examining these processes in a clinical sample (Chapter 9), which confirmed that the hypothesised relationships hold true in a variety of populations.

Therefore, there is no reason to suppose that the social-psychological relationships demonstrated in the thesis are not valid across a variety of settings and groups.

A second limitation applies not just to the current research program, but to the social identity approach in general. As made clear in Study 8 (Chapter 8), existing measures of social identification and, in particular, identity salience, remain inadequate. These concepts are reactive, in the sense that they are changed through the very act of measurement, and as such self-report scales frequently fail to capture a true representation of the fluid shifts in identity that are expected. However, as this represents the central concept of the social identity approach, it is vital that the strength and salience of identity be measured in a reliable and valid way. The importance of this cannot be understated: in the absence of improved instruments, the social identity approach risks a lack of precision and even unfalsifiability. For example, the concepts of salience versus strength of identity become increasingly blurred and indistinct as researchers use social identification scales to both measure and manipulate identity salience in the absence of more appropriate tools. More seriously, researchers infer the presence of the proposed psychological mechanism (i.e., identity salience) due to the presence of the predicted behaviour. This was exactly the weakness of Study 8. The empirical results of this thesis, along with all those within the social identity framework, would be strengthened by the development of a robust measure of identity salience.

### **Future Research**

Each of the empirical chapters has outlined a number of ways in which each particular avenue of enquiry could be meaningfully extended. Rather than repeat these here, this section expands upon key themes and suggests new directions for research at the intersection of social identity and eating as a whole.

Firstly, there is an alternative way in which disordered eating may be studied from a social identity approach: conceptualising disordered eating not as the

behavioural outcome, but rather as the basis for *identity formation*. That is, a particular pattern of eating may come to define a group of individuals (e.g., “obese people”, “anorexics”). The social identity approach then has much to say about how individuals respond to being in these typically devalued social categories. For instance, the theory would predict that the perception of impermeable group boundaries would lead to the use of social change or social creativity strategies to alter the status of the group. An example of this might include eating-disordered individuals who create pro-anorexia websites that reframe the disorder as a valued lifestyle choice (Norris, Boydell, Pinhas, & Katzman, 2006). Alternatively, when group boundaries are seen to be permeable, individuals are more likely to use individual mobility strategies to attempt to join the high status group. An example of this might be the repeated efforts of obese persons to engage in weight-loss dieting, despite a history of failed attempts (Heatherton, Polivy, & Herman, 1991). This represents a valid and compatible alternative conceptualisation to the approach taken in this thesis. Therefore, future research that took the approach of exploring how members of these disordered eating groups frame their own identity and respond to devaluation would be worth pursuing.

Secondly, this thesis suggests the value of a social identity approach not just in conceptualising disordered eating behaviour, but also in *intervening to change it*. Particularly in the results of Chapter 9, there is evidence that social groups represent an untapped opportunity to influence eating behaviour in a positive direction. Although the focus of this thesis has been on how group-processes are central in shaping *disordered* eating behaviour, there is every reason to expect that they are equally as influential in shaping healthy eating. This is where future research would be most valuable: in designing and implementing social-identity informed interventions that aim to counteract disordered eating behaviour, either at the preventative or treatment stage. In

the vein of the burgeoning field of “social cure” research (Jetten, et al., 2011), this thesis suggests that much is to be gained by pursuing this practical avenue of investigation.

Finally, the success of the social identity approach in explaining and predicting disordered eating behaviour suggests that it may be valuable to apply a similar model in conceptualising other mental illnesses. This is particularly true for disorders where similar features are observed, such as society-wide changes in prevalence and the predictive utility of social variables. In such cases, there is every reason to expect that the social identity approach might be equally successful in predicting and modifying outcomes. Examples that fit this description are depression, substance abuse, and post-traumatic stress, all of which remain largely unstudied by social-psychologists. Therefore this thesis suggests a rich array of opportunities for future research, both applied and theoretical in nature.

## Conclusions

This thesis began by describing the importance of disordered eating behaviour as a topic of study, due to its increasing prevalence and significant societal cost. Existing evidence was outlined that suggested the role of social influence in disordered eating, and the limitations of existing models of this influence were explored. I argued that the social identity approach is uniquely situated to address the gap in the literature, both due to its parsimonious account of the social influence process and its capacity to articulate the interaction between sociocultural and individualistic variables in shaping behaviour. Empirically, the thesis began in Chapter 5 with the development and validation of the Dieting Intentions Scale, an instrument designed to fill a vacuum in the literature by being oriented toward future behaviour. In Chapter 6 and 7, experiments were presented that tested the hypothesis that social influence would be moderated by shared group membership. For both a persuasive health promotion video and a confederate eating popcorn in the laboratory, this hypothesis was confirmed, as in-group members exerted

greater influence over participant behaviour. In Chapter 8, three studies were presented that tested the hypothesis that the predictors of dieting intentions would vary depending on the contextually-salient identity. When personal identity was salient (or gender identity was weak), thin-ideal internalisation predicted dieting intentions. When gender identity was strong, however, injunctive norms of the gender group predicted dieting intentions. Finally, in Chapter 9, it was hypothesised that eating-disordered individuals would be similarly influenced primarily by contextually-salient in-group members. This was upheld in a sample with clinically diagnosable eating disorders. Overall, the thesis has contributed to social-psychological theory by verifying the generalisability of the social identity approach. Perhaps more importantly, however, the thesis has contributed to clinical-psychological theory, offering novel insights into disordered eating but also to the conceptualisation of pathology more generally. Finally, the findings have utility for the prevention and treatment of disordered eating, which should be a particular priority of future research. It is clear that the social identity analysis of social influence has contributed substantially to our understanding of disordered eating behaviour.

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